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GLEANINGS

IN BEE CULTURE



THE A. I. ROOT CO.,
MEDINA, OHIO.

Western Edition

Entered at the Postoffice Medina, Ohio, as Second-class Matter

North Texas Beekeepers

will find Dallas the best point from which to purchase supplies. We have a carload of ROOT'S GOODS in stock, and sell them at Factory Prices. Don't forget that we can furnish anything in the way of field or garden seeds, plants, and poultry supplies. Large illustrated catalog for 1906 free on application. Mention *Gleanings* when you write. Wish to purchase Beeswax.

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Seed and Floral Co.
Dallas, Tex.

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The ROOT'S 1906 BEE-SUPPLIES

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Springfield freight rates,

FACTORY PRICES

Send for seed catalog, bulb
and plant catalog, Cyphers
incubator catalog, The A. I.
Root Co. bee-supply catalog

SPRINGFIELD SEED CO.
Springfield, Mo.

MR. TEXAS BEE-KEEPER

I would like to talk to you *personally*.

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's *better* in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you supplies with the utmost promptness.

Then, too, I have installed a complete Weed-Process Foundation factory. I can turn out 500-lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when at San Antonio. You are *always* welcome. I have fitted up my office with plenty of desks and chairs, with writing material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

After the 15th or 20th of April I can supply Red-clover and Golden Italian queens promptly.

Call or Address

Udo Toepperwein - San Antonio, Texas
1322 South Flores Street

C. H. W. Weber,

Headquarters for

Bee - Supplies.

Distributor of Root's Goods Exclusively, at Root's Factory Prices.

Give me your order for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs. CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE of charge.

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel, stain or otherwise; all the cells sealed except an occasional sell, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

ATLANTA.—Honey market is at a standstill with us, and there will be very little doing till the new crop begins to move. We quote: Fancy white, 12½ to 14; No. 1, 10 to 11. Beeswax firm at 30 for No. 1 stock.

March 19.

JUDSON HEARD & Co.,
Atlanta, Ga.

TOLEDO.—The market on comb honey at the present time is very hard to give, as no one has any honey to quote prices on. Fancy comb would bring very readily 16; No. 1, 15; and almost anything, 14. Extracted in barrels is at a premium. No one has any to offer. Beeswax is firm at 28 to 30.

March 19.

GRIGGS BROS.,
521 Monroe St. Toledo, Ohio.

CHICAGO.—Choice white comb sells at 15, and there is no surplus thereof. Other grades go slowly at lower prices. Extracted is without special change unless it is that clover and basswood of good flavor are no longer obtainable. The Western product is in fair supply, with best grades of white at 6½ to 7, and amber 5½ to 6½. Beeswax, 30.

March 20.

R. A. BURNETT & Co.,
199 South Water St., Chicago, Ill.

SCHENECTADY.—Weather conditions continue favorable for the sale of honey, and it moves off on arrival at satisfactory prices; and as stock is small, buyers are not quite so exacting about quality. We quote: White clover, 14 to 15; buckwheat, 11 to 12; extracted, light, 7 to 7½; dark, 6 to 6½.

March 20.

CHAS. McCULLOCH,
Schenectady, N. Y.

PHILADELPHIA.—The call for honey is falling off; while the supply is not abundant, yet it equals the demand. We quote: Fancy white comb, 16 to 17; amber, 13 to 14; white-clover extracted, 7 to 8. Beeswax, 28. We are producers of honey, and do not handle on commission.

March 20.

WM. A. SELSER,
10 Vine St., Philadelphia, Pa.

NEW YORK.—Demand for comb honey is fair, especially for the better grades, and fancy white is selling at from 14 to 15; No. 1 at 13; light amber at 11 to 12. No more demand for dark comb honey. Extracted is in good demand, mostly California, at unchanged prices. Beeswax is firm at 29 to 31, according to quality.

March 19.

HILDRETH & SEGELKEN,
82 Murray St., New York.

KANSAS CITY.—The demand for honey is improving. Fancy white comb honey, 24 sections, sells at \$3.25; amber as low as \$2.75; extracted, 6½ to 7.

March 19. C. C. CLEMONS & Co., Kansas City, Mo.

BOSTON.—Our market is practically cleaned up of 1905 comb honey, leaving a fair stock of old honey still on hand, which ought to sell now that the new is out of the way. The market on best grades of fancy white is 16 to 17, with very little to offer. Extracted, 6 to 7, according to quality.

March 22.

BLAKE, SCOTT & LEE Co.,
31-33 Commercial St., Boston, Mass.

BUFFALO.—Honey is all cleaned up in our market. There has been an advance and a very good demand at the advanced price. It is scarce in the country, and we think it will stay high until next crop is ready for market. We quote: No. 1 to fancy white comb, 15 to 16; No. 2, white comb, 12 to 13; No. 1 buckwheat, comb, 12 to 13; No. 2 buckwheat, comb, 11 to 12; white-clover extracted, 8½ to 9; amber extracted, 7 to 7½; dark extracted, 6 to 7. Beeswax, 30 to 32.

March 29.

W. C. TOWNSEND,
Buffalo, N. Y.

CINCINNATI.—The demand for comb honey is slow, and prices obtained are the same. Stock on hand seems to be sufficient for wants. Quote fancy white, 14 to 16; amber extracted, in barrels, 5¼ to 5½; in cans, ½ ct. more; fancy white clover in 60-lb. cans, 7½ to 8½; Southern, equal to white clover in color 6½ to 7. Bright yellow beeswax, 30.

March 3.

C. H. W. WEBER,
2146-8 Central Ave., Cincinnati, O.

ST. LOUIS.—The honey business continues to drag along slowly at the same quotation as in our last. We quote: Fancy white comb honey, 13 to 14; No. 1, 12 to 13; amber, 11 to 12; extracted, California light amber, 6 to 6½; outside price for liquid honey, Spanish needle, 6½ to 7. Southern, in barrels, 4¼ to 4½; in cans, 5 to 5½. Beeswax, 29 to 29½.

March 3.

R. HARTMANN & Co.,
14 So. Second St., St. Louis, Mo.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.

O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

BEE SUPPLIES.

We handle the finest bee supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders, let us figure with you on your wants.

MUTH SPECIAL DOVE TAIL HIVES, have a honey board, warp-proof cover, and bottom board, think of it, same price as the regular styles. Send for Catalog.

THE FRED. W. MUTH CO.,

51 WALNUT ST.,

CINCINNATI, OHIO.

WANTED.—Comb and extracted honey. State quality, quantity, and price.

JUDSON HEARD & Co., Atlanta, Ga.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEGELKEN,
265-267 Greenwich St., New York.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.

EVANS & TURNER, Columbus, Ohio.

WANTED.—Carlot or less quantity of fancy comb honey, also extracted basswood or white clover.

E. R. PAHL & Co.,
Broadway and Detroit St., Milwaukee, Wis.

FOR SALE.—Finest quality new-crop California water-white, white-sage, and light-amber honey in 60-lb. tins, two in a case; new cans and new cases. Write for prices and samples, and state quantity you want.

HILDRETH & SEGELKEN, 82 Murray St., N. Y. City.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity.

R. A. BURNETT,
199 South Water St., Chicago, Ill.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here.

GRIGGS BROS., Toledo, Ohio.

WANTED.—A case of two 60-lb. cans extracted honey (1906 crop) of each variety or source from every State in the U. S.; also from Canada, Mexico, West Indies, and other accessible countries. With each lot is required a certificate guaranteeing absolute purity of the honey, and gathered from the source named. Exceptional care must be taken to have the honey well ripened, of good representative color from source named. The honey should be extracted from clean new combs free from pollen. An extra price of about 2 cts. per pound will be paid for such honey, or we will arrange, if desired by any, to supply those co-operating and furnishing sample shipments, with ¼-lb. samples of each variety secured, labeled with name of producer, year, and source of honey. We expect to secure at least sixty varieties of American and foreign honeys. Do not ship, but advise us what you can furnish, and on what basis.

THE A. I. ROOT CO., Medina, Ohio.

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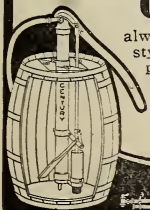
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The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL
at the World's Fair
St. Louis, 1904



**UP-TO-DATE.
STRONGEST,
COOLEST,
CLEANEST,**

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool adding to its durability. It has no valves to get out of order or snout to clog with soot.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best. N. E. FRANCE, Platteville, Wis.

IT SURPASSES ALL OTHERS.—"After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers it has been my liberty to try; it will not go out until fuel all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker." Grant Stanley, Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, page 1370; sent free with price list.

F. DANZENBAKER, MIAMI, FLORIDA



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The Mugler Engraving Company

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HERE we are, prepared to make Photographs, Half-tones, Zinc E. chings, Electrotypes of the very finest quality.

We have had special experience in making cuts for bee-keepers and bee-supply dealers, having made plates for THE A. I. ROOT COMPANY for several years.

Your request for prices or information will be immediately cared for.

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

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Editor Home Departments

H. H. ROOT
Asst. Editor

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I have three boys man-grown, and for that reason, I wish to sell my farm and go into Northern Michigan where wild land is cheap, that we may all secure farms near together. The farm that I wish to sell is located eight miles east of Vassar, Tuscola Co., Mich. It consists of 40 acres, 30 of which are cleared. It is well fenced and well drained. There is a small orchard, stables for the horses and cows, and a small story-and-a-half house. The soil is a dark sandy loam, and can't be beaten for raising potatoes, corn, hay, buckwheat, etc. There is rural mail delivery, school quarter of a mile

distant, and railroad station only two miles away. The location is a good one for honey. From twenty colonies last year I secured 120 pounds of extracted honey per colony. I offer this farm for only \$600; two-thirds down, and balance on long time if desired. Would accept bees as part payment if they were not too far away. For particulars address

Elmer Hutchinson, Vassar, Mich.

Reference, Editor of Review.

HERE'S YOUR CHANCE

to win a prize by doing a little work in
obtaining subscriptions for Gleanings
in our Second Subscription Contest.

Last contest EVERY contestant that sent in more than ONE subscription obtained a prize. It will doubtless be so in this contest, so that besides the regular commission you will receive a prize that will more than pay any effort made.

Twenty-five Prizes!

(Variety of queen to be winner's selection)						
First Prize	\$10.00 queen	Fourth Prize	3.00 queen			
Second Prize	7.50 queen	Fifth Prize	2.00 queen			
Third Prize	5.00 queen	6th to 15th Prize	One cloth-bound A B C			
		16th to 25th Prizes	One Junior Cornel smoker			

Conditions!

FIRST.—That subscriptions to be entered in this contest are to be obtained as results of work between February 15 and July 1, 1906.

SECOND.—To be eligible to any one of the first fifteen prizes, contestant must have at least five yearly subscriptions, or their equivalents, to his credit.

THIRD.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, six months) are equivalent to one year's subscription.

FOURTH.—That subscriptions can be sent in any time, but must be plainly marked "For Second Subscription Contest."

CUT HERE

Gleanings in Bee Culture

Subscription Contest Department.

Date

GLEANINGS IN BEE CULTURE, Medina, Ohio:

Please send agents' terms and enter my name as contestant in Second Subscription Contest. Send to my address at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions and agree to them.

Name

P. O.

I can use sample copies of Gleanings. State

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Have you been patronizing our seed and nursery advertisers this season? We are very proud of the ad's we have carried in this line. Many of the very best—most reliable—houses in the country have been represented regularly. Several of these people have advertisements in this number; and if you have not already done so, send for their catalogs and plot out your garden. Only a few days off to seed-planting time, you know.

When making a catalog or booklet to use in answering inquiries in answer to your advertisements, you should consider carefully just what information the inquirer will want. Answer his questions before they are asked, by describing your products in a simple, accurate, and complete way. The latest catalog which we have seen that comes up to this standard is the booklet entitled "Profitable Poultry," issued by Berry's Golden Rule Poultry Farm, Clarinda, Iowa. Poultry information is given here in every conceivable way. You will act wisely in send-

ing for the Berry catalog if you are in the market for poultry or want a model catalog.

PACIFIC COAST AND ROCKY MOUNTAIN STATE ADVERTISERS WANTED.

If some of our bee-keepers in the far western States knew how many requests come to this office for queens and bees from clear out in California, down in the extreme Southwest, and in Mexico, we are pretty sure they would then realize that they are living in a profitable field. It's oftentimes hard for eastern advertisers to fill orders quickly, and for their patrons to realize how adverse the shipping conditions are from the Eastern States to the far West. When Californians are having the very finest bee-weather, likely as not the snow is flying here. If you have bees, queens, or honey for sale we can offer good reasons why you should advertise in GLEANINGS. A man in California put a honey ad. in our Feb. 1st number. Ten days later he wrote, "Please drop my ad. from your Honey Column, as I have enough offers to last three months and more." How many orders have you ahead?

HOW TO USE THE INDEX.

Are all of our readers aware that the index on the opposite page refers to Advertisers? It is very easy to use this index, just think to what class the advertiser whose ad you want to see belongs, then look under the proper heading and you will find his name given and the number of the page on which his ad appears.

We like to have our readers look over all our advertisements, and really it is for your good to do so. Many new advertisements appear in each issue and something may be advertised in this number which you need very much. But the index is invaluable if one wishes to find a certain ad in a hurry.

POULTRY.

So many of our bee-keeping friends who keep poultry also, have sent in small classified ads, either wants or offers on poultry or eggs, that we are adding a new heading in our classified advertising columns this issue.

Statistics which we have recently gathered show that a great many bee keepers are poultry raisers also and many profitable poultry sales have already been reported. The special rate which we are making for Ads under "Poultry Offers," is three lines for 50 cents—each insertion. Allowing about nine words to the line, a very good ad can be inserted at a small cost.

Stop and Consider!

How much time have you wasted in cleaning wooden separators, and then not having the color-stains of the propolis scraped off?

Wire-cloth separators do not need cleaning very often.

Consider Again!

Why you can not secure as nice comb honey from any old super filled with color-stained wood separators as with an entirely new super with new separators. Have you ever noticed it? Wire-cloth separators are not colored with propolis, and consequently the stains are not transferred to the nice white capping of the comb. If these separators need cleaning, by boiling them in water they come out as **good as new**. For prices, see catalog sent out from Syracuse, N. Y.

The A. I. Root Co., Syracuse, N. Y.

HIVES - HIVES



Now is the time to place your order for the hives you will need this year. By getting them now you will save the discount, and can have them nailed and ready for your bees in the spring.

We should like to quote you prices in any quantity on the following:

The Root Chaff Hive

The best chaff hive made

The Danzenbaker Hive

The comb-honey hive

The Root Dovetailed Hive

Standard size and extra quality



Send for Catalog

M. H. HUNT & SON, BELL BRANCH, MICH.

We Sell Root's Goods in Michigan

A 50-cent Bee-book for only 20 Cents

~~~~~  
**When Taken with the Weekly American Bee  
Journal One Year**  
~~~~~

We have of the cloth-bound edition of the 160-p. book by the
late Thomas G. Newman, called "BEES AND HONEY,"

Only 200 COPIES LEFT

Do you want a copy? While they last we will mail a copy in connection with a
year's subscription to the WEEKLY AMERICAN BEE JOURNAL (which alone is
\$1.00) BOTH FOR ONLY \$1.20. First come, first served—while the books hold out.
It will be your last chance to get a copy of this book. Better order NOW. ❀ ❀
We send a TRIAL TRIP of 13 weeks (13 copies) of the AMERICAN BEE JOUR-
NAL to a NEW subscriber for only 20 cents. A single sample copy free. ❀ ❀
The Weekly AMERICAN BEE JOURNAL is better than ever this year. You really
ought to have every week, if not now, a regular subscriber. ❀ ❀ ❀

~~~~~  
**George W. York & Company**  
334 Dearborn St., Chicago. Ills.

## GOLDEN Opportunities!

EXIST in the South, and the Seaboard  
Air Line's monthly magazine will  
point them out to you. If you are  
thinking of changing your loca-  
tion, engaging in other business, want a  
winter home, a summer home, or a place  
for all-the-year-round residence, want  
an orange grove, a banana plantation, a  
pineapple grove—in fact, anything, and  
want it in Virginia, the Carolinas, Geor-  
gia, Alabama, or Florida, the magazine  
will assist you.

Sent free on request, together with  
other handsomely illustrated literature  
descriptive of the South and its wonder-  
ful resources and progress.

**J. W. WHITE**

**Gen. Indus. Agt., Portsmouth, Va.**

**Seaboard Air Line Railway**

## Something New in Honey-jars...

Cook's Square Jar combines a new fea-  
ture that improves the package and  
reduces the cost, and is the best and  
cheapest 1-pound glass package made.  
Send for circular and full catalog of  
hives, bees, and useful implements. . .

**J. H. M. COOK, 70 Cortlandt St., New York**

The Oldest Supply-house in the East, and  
only Reliable goods sold. 10 cents brings  
sample jar by mail.

## Sweet Potato Seed

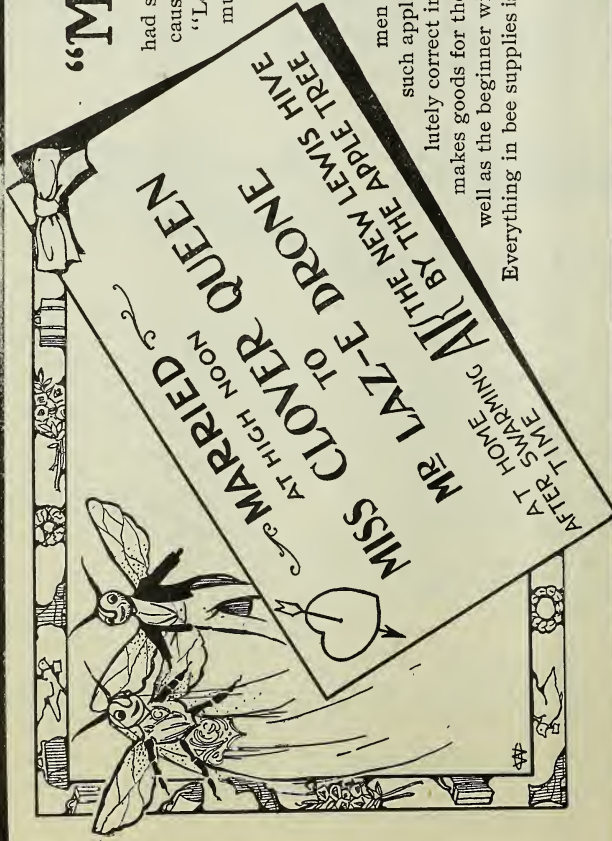
Bright stock; straight from storage;  
best varieties—old and new. Send  
for my free descriptive price list.

— ADDRESS —

**L. H. Mahan, Box 143, Terre Haute, Ind.**



# THE HONEY-MOON OF THE HONEY QUEEN



(Extract from the "Beeville" Chronicle.)

"MIDST strains of Italian music Miss Clover Queen was wed to Mr. Laz-e Drone at high noon yesterday. The Frame wired the Foundation to come, but she was pressed and could not leave. Many other suitors had sued for the hand of Miss Clover but Mr. Laz-e Drone conquered because he offered her a home made by G. B. Lewis Co. Such hives as "Lewis" makes are fit for any queen, and any bee who owns such a home must belong to the aristocracy so all in Beeville approved."

LEWIS hives and sections are made from the finest Wisconsin white pine and basswood. This wood is nice, clear, white and free from the spots found in wood from many other states. Lewis Goods are made to go together right. They are right because the G. B. Lewis

Co., has been manufacturing bee goods for the past thirty years, having men in its employ who have given their lives to the proper construction of such appliances so that all details as regards bee space, etc., are found to be absolutely correct in Lewis Beeware as tried out by the experience of years. The Lewis Co., makes goods for the specialist bee-keeper who reaps a harvest of tons of honey a year as well as the beginner with one colony. Your bees can earn the most money with Lewis Goods. Everything in bee supplies is handled by your nearest Lewis agent,

# G.B. LEWIS CO. MANUFACTURERS OF BEE KEEPERS' SUPPLIES WATERTOWN, WIS.

# GLEANINGS IN BEE CULTURE

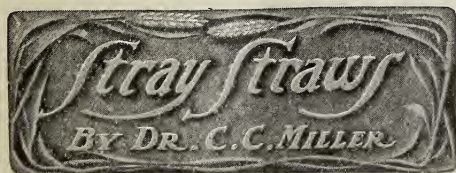


A Journal Devoted to Bees, Honey, and Home Interests  
Illustrated : Semi-monthly : One Dollar per Year  
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

APRIL 1, 1906.

No. 7



A. I. ROOT, can you grow sweet clover in Florida? I don't know that any one has succeeded. You are just the man to try it.

A REMARK, p. 348, sounds as if bees are not taxed in Ohio. Are they not? and if not, why not? [Yes, bees are taxed like other property; but the proposed tax referred to on p. 348 was for the purpose of raising a fund for paying a foul-brood inspector only. See Editorials.—ED.]

QUEEN-REARING IN ENGLAND is the title of a pamphlet by F. W. L. Sladen, F.E.S. It follows, in the main, the Doolittle plans, and is up to date. [I have seen this work, and believe it to be a good one. Mr. Sladen himself is not only a practical bee-keeper but a scientific man as well.—ED.]

REPLYING to your question, p. 344, I think it was from a German or French bee-journal that I got 50 degrees as the temperature of a cluster of bees in winter. But I should have said that *that* was the outer part of the cluster, and probably outdoors. You likely found 84 in the center of the cluster. Somewhat strangely, if you had tested a colony outdoors you would probably have found 90 or more in the center.

NO DOUBT, Mr. Editor, you are quite right in thinking that scent has something to do with the calling of bees. F. W. L. Sladen, F.E.S., thinks the swarming-call "is at least partly due to a scent which is emitted from a membrane situated between the fifth and sixth dorsal segments of the abdomen. Ordinarily this membrane is covered by the

fifth segment; but whenever the humming takes place it is exposed, and the scent is then given off. The scent is very pungent, and suggests a mixture of that of iodine with that of formic acid."

YOU DIDN'T get the point of my question, p. 344, Mr. Editor. If it works all right to carry the last bees out of the cellar in broad daylight, why not carry out all in daylight? [There is no objection at all to carrying *all* the bees out by daylight in case there is a small number of colonies—say not over 100 to be moved from the cellar. But it would be simply impossible for Mr. Alexander to move *all* his bees by daylight so that, when it warmed up, all the bees would have a chance to fly at once. The point I tried to make was that we should avoid carrying bees out *after* it warms up. Do the work at night or very early in the morning, just preceding a bright warm day; that is, get every colony out before the bees have had a chance to fly.—ED.]

DR. E. F. PHILLIPS calls attention to some things which make it seem that the span of life of a worker in the busy season is hardly up to the orthodox six weeks. Dr. Dzierzon says, "I made a great many artificial swarms from pure German bees with a pure Italian queen. In six weeks there was not a single German bee left." It is hardly supposable that each bee lived exactly the same number of days; and if no bee lived beyond the six weeks, was not the *average* span of life less than six weeks? Moreover, v. Buttel-Reepen says, "In rich forage the bee lives often only two or three weeks." [If I mistake not, Dr. Phillips will bring to light some other fallacies that have been repeated so often that they almost seem to be true.—ED.]

I FANCY A. I. Root smiling as he reads p. 348, and saying, "Yes, I once tried hurrying up things by putting bees in a hot-bed. Ernest's bees in the window will likely come



out about the same way." [You forget, doctor, that I was almost constantly with A. I. Root when the experiments to which you refer were being conducted. I remember perfectly as though it were yesterday the whole thing. But the plan that he carried out was quite different from the one outlined on p. 348. He was trying to make the bees fly *inside* of a greenhouse or warm room. If you will read again what I said you will see we are attempting nothing of the kind. The *hives* and *nuclei* only are kept in a warm room, but the *bees* are permitted to fly *outdoors* whenever it is warm. In this way you will see that we hope to bring about the conditions similar to those of normal colonies outdoors about a month later. Whether we can steal a march on nature of a whole month remains yet to be proven.—ED.]

GLEANINGS has learned to talk French. In other words, a new bee-journal is published—*L'Apiculture Nouvelle*, which repeats the contents of GLEANINGS, only giving them in French. With this journal in French, and *Europäische Bienenzucht* giving American methods in the German language, Europeans ought not to be in the dark about what's going on in bee-keeping on this side the water. Now don't get the big-head because you're an American bee-keeper. Without the things we've learned from other countries, bee-keeping in this country would not stand where it does now. The address is 142 Faub'g St. Denis, Paris. [Bee-keeping on the continent of Europe is just beginning to have an awakening. While we freely acknowledge that we have learned much in point of pure science from our European cousins, yet we feel that they have something to learn from us in the *practical* management of bees.—ED.]

E. F. ATWATER, in *Review*, has given, perhaps, the key to something that has been a puzzle to me. Editor Root said that, with Langstroth frames, there was an amount of honey in the upper part of the combs that I knew was not to be found in mine; for often my combs have brood clear up to the top-bar. Mr. Atwater says that foundation sags in the deep frames, at the upper part, "to such an extent that there was very little brood reared within, perhaps, two inches or more of the top-bar." With horizontal wiring I can easily believe that would be so. With vertical foundation splints in my own frames there is no more sagging at top than bottom, giving me, in that respect, the advantage of shallower frames. [Score a point in favor of splints in place of horizontal wires; and I am not sure now but it was a mistake to change from vertical to horizontal wires, for which I was largely responsible, if I mistake not. But when we adopted thick top bars it did not seem practicable to use perpendicular wires. The best solution of the whole problem yet, in my estimation, is very fine iron wires incorporated in the foundation by the maker. We have worked on the problem for years, but have not

yet been able to solve it. Mr. Van Deusen has succeeded with a flat base. You may ask what the objection is to your splints. They are too large, and yet the diameter can not be reduced. What I should prefer would be fine perpendicular wires laid right into the foundation in the first place, the wires about two inches apart.—ED.]

REFERRING to p. 355, I think, Mr. Editor, your idea of uniting colonies immediately upon taking from the cellar will work even better than later. The trouble, however, is that, at the time of taking out, you can not tell so well just which the strong and weak ones are. [What you say is true; but last winter we put our colonies in with marks of identification to indicate their relative strength in stores, so we could have some idea of them, and what their condition would be or ought to be by spring. I know it seems hard to get a very good idea of the strength of colonies when taken out. Doolittle recommends putting a wet rag over the entrance to shut bees in. A handful of snow when obtainable is equally good. With a pry loosen the cover; use a little smoke to keep the bees down, and I think you can tell very quickly whether the colony is strong or weak. You can not always detect the *medium* from the *strong*, but you can always determine when a colony is *weak*, and these are the ones that should be united with the strong, or, better, the medium strength.—ED.]

I THANK YOU, Mr. Editor, for your answers, p. 345, to my questions about breeding from hybrid stock. I think we are entirely agreed, except in one thing. You think I can get pure stock that will store as much as my hybrids. I don't—at least, not easily. We will try to settle who is right. You are to send me (I paying for it) a queen of the right sort. I will queen a number of colonies with her royal progeny, and compare their work with that of the hybrids. If the new comers store most, you beat. If you do, it will be to me a real pleasure. [But look here, doctor; that is not going to be a fair test. My idea was for you to get a breeding queen from *each* of *four* or *five* *different* queen-breeders, and then select from that lot the one that shows up the best in honey. You might have to try this out on two or three different years. I feel satisfied that, if you work on that basis, one of the queens in due course of time would equal or excel your mixed blood. The fact is, breeders are not going to sell their best queens—I mean their breeding queens—and will part only with the daughters of those queens. Owing to the fact that they are unable to control male parentage as they would like, it is seldom that the daughter of a breeder will be the equal of her mother. Take, for example, our old \$200 queen. There was not one of her daughters that was quite the equal of the old original, although we had some very good ones. Say! we would give \$500 quick if we could get that old queen back.—ED.]





WE have been informed that there has been a general good rain throughout the honey section of California, and that the prospects for a fair crop of sage and alfalfa are good.

#### HEAVY WINTER LOSSES IN KANSAS.

WE have received numerous reports from Kansas of heavy winter losses, indicating a mortality of from 30 to 75 per cent. So far we have received no unfavorable reports from other sections, yet we are fearful that the mildness of the fore part of the winter, followed by a cold March, will result in a large amount of brood-rearing and a heavy consumption of stores and starvation. The cold snap, coming on just when brood-rearing was at its best, would probably kill a good deal of brood as well as cause the chilling of a good many bees trying to hover over the brood.

#### LATEST FROM THE CABIN ON THE ISLAND OFF FLORIDA.

WE have received a card from A. I. R., since the matter he wrote elsewhere in his department went to press, saying that he now has four young queens laying, of Caucasian blood, and that the old Caucasian queen has her hive so full of honey that they are preparing to swarm, and that her colony is far ahead of the Italians and hybrids.

Our Caucasian breeder is an imported one that we secured direct from Russia; and on the island we are endeavoring to inbreed, to pick out the best individuals from such inbreeding. A. I. R. has, of course, trapped out all the hybrid and Italian drones, and is rearing only Caucasian, so that the queens from the imported ought to be just as pure as the mother. Later on, if the plan works well, we shall get some other pure imported Caucasian stock from other regions in Russia to tone up any loss due to inbreeding. I anticipate that, on the island, we shall be able to solve practically the problem of breeding from select drones.

We have no Caucasians for sale at present, and may never have if the stock should not show up well later on; so, don't ask just now for queens.

#### THE HONEY-PRODUCERS' LEAGUE NOT RESPONSIBLE FOR THE PUBLICATION OF PAMPHLET ATTACKING PROF. WILEY.

A SHORT time ago the Honey-producers' League was credited through the general press with sending out an elaborate pam-

phlet giving the history of the "Wiley lie," so called, and attacking Professor Wiley himself. The League, as I happen to know, had nothing to do with the preparation of or the sending-out of the pamphlet under consideration, although at the last meeting of the Board of Directors at Chicago they were approached by certain interests, and requested that the League father the pamphlet, with the understanding that these "interests" would pay all expense of publication, as well as postage. The matter was discussed, and by a unanimous vote it was decided to do nothing with it, as it was not known what these certain "interests" represented. The president, Dr. Miller, assures me that no further action was taken. It was the feeling on the part of some of the Board that the "interests" back of the pamphlet were the brewers and distillers who were endeavoring to "get back at" Wiley for his strenuous attitude on the subject of a national pure-food law. If that were the fact the League felt that it could not be used as a club to pound Wiley, because bee-keepers stand for pure food.

#### THE OHIO FOUL-BROOD LAW AND THE SPECIAL TAX OF ONE CENT PER COLONY.

THIS was duly signed by Governor Patterson, and has already taken effect; but, contrary to what I had supposed, the expense for the enforcement of such a law is provided by a tax of one cent on each colony in the State. Where one has 100 colonies he would be placed on the tax-duplicate for \$1.00, as I understand it, in addition to the regular tax on his bees.

If the assessment of one cent per colony will be the means of checking the disease and otherwise keeping it out of any given locality, the money will be well invested.

Perhaps some bee-keepers in the State may claim that they can take care of their own foul brood, and that the tax of one cent per colony is exorbitant and unnecessary, because of the fact that only a few localities will be affected. In this they may, perhaps, be mistaken. The disease is all around us. Black brood and foul brood exist in York State; foul brood has gotten a good headway in Michigan, and in some localities in Canada it still exists. With foul brood all around us it is high time that we had an effective working law in Ohio, and I believe we have it now.

After the amended foul-brood bill passed the Senate (the special tax of ten cents per colony being stricken out) I received word from our Representative, Mr. Woods, that there was a disposition on the part of the House to kill the bill because of the expense it would involve to pay inspectors out of the regular county fund. I suggested then that he see the author of the bill and ask if there would be an objection to putting back the special tax but only half a cent or one cent per colony. I heard nothing more of the matter until I saw the bill had passed both Houses; and the fact that the one-cent tax

was added to the measure would indicate that it was done to save the bill.

In brief, the law now provides that, on the complaint of three persons, residents of the county, to the county commissioners, setting forth that the disease known as foul brood actually exists within said county, the county commissioners *shall* (not *may*, as it was in the old law) appoint a competent person as foul-brood inspector, clothed with necessary authority to inspect colonies, and treat the same according to the most up-to-date methods. The expense of such inspection will be paid out of the funds secured from the special tax of one cent per colony, as I understand it. As there are 150,000 colonies in Ohio, according to the last census, this will give us a fund of \$1500—more than enough, I should say, to do the work thoroughly throughout the whole State.

#### G. M. DOOLITTLE.

VERY few, perhaps, will recognize the individual whose face appears on the front cover page of this issue; but he is, nevertheless, one of the best-known men in all bee-dom. He is none other than our old friend G. M. Doolittle, of Borodino, N. Y., a correspondent who has been conspicuously before the bee-keeping public as general instructor for a period of at least thirty years.

He is the author of "Scientific Queen-rearing," a work that first brought out certain new principles that are now basic in nearly all modern methods of rearing queens. He was the first to exploit to any great extent the artificial cell cup, grafting the same and then having it accepted and built out in a colony where there was already a laying queen; of having queens fertilized from "upper stories," and several other tricks that were then new to the business.

For the last sixteen years he has been working on a system of swarm control in connection with the production of comb honey. The two first chapters of the new book are published in this issue, and will speak for themselves. Mr. Doolittle considers this one of the best things he has ever given to the public. He is a close, careful observer, one whose apicultural knowledge comes direct from the bees. There are but few men in our ranks who are better posted in regard to the natural habits of bees than he; and few men whose writings are more carefully read, especially by the beginner class, for he has been the Gamaliel at whose feet many have sat.

#### EARLY QUEEN-REARING IN THE NORTH.

JUST as we were going to press with the last form I received the following from the senior editor which will explain itself:

#### ARTIFICIAL HEAT FOR BEES IN SPRING.

When Ernest speaks of keeping bees in the office (see p. 348) he probably forgot about my experiments with the house-apiary 25 years ago. The idea was to keep the whole house warm so as to hasten early brood-rearing, etc.; but after much time and money were spent by myself and many others we reluctantly decided that a good strong colony with no artificial heat was quite often

ahead of us. I believe poultry-men have also decided that stove or steam heat to get eggs in winter is a failure. Will our poultry-men tell us if this is true up to the present date? Queens can be hatched any month in the year here, or up north, and drones can be secured also; but to get queens fertilized we must have warm still days for both drones and queens to get a good natural flight. I have finally, during the middle of March, succeeded in getting all queens, not too old, to laying nicely.

A. I. ROOT.

As will be seen by the answer to Dr. Miller on the same subject in Straws in this issue, both he and A. I. R. have misunderstood what I tried to say on page 348. I was not unmindful of the experiments of my father 25 years ago, both in his greenhouse and in the house-apiary. I also remember an experiment not mentioned by either, of his burying colonies in manure. The artificial heat generated by the fermenting mass kept the individual hives warm. But colonies so treated did no better than other colonies packed without artificial heat. As I remember the experiments at the time, it was a question whether or not the heat did not over-stimulate to the positive detriment of the colony.

The plan I outlined on page 348 was not for stimulating colonies, but to get queens early in the season, the flight to be always outdoors when suitable weather permitted. The plan is working all right so far as getting the cells is concerned; but so far during March (it is now the 28th) we have not had a single fly-day, and this is rather unusual. During April we shall undoubtedly have plenty of days in which the queens can fly out, and meet drones in the yard.

There is another point, that small nuclei for mating purposes could not possibly exist outdoors in a temperature such as we have been having. Experiments thus far show that they do exist in a warm room; but unless we get a fly-day soon there will be trouble.

#### SOME OF THE GOOD THINGS THAT GLEANINGS WILL GIVE ITS READERS DURING THE COMING YEAR.

I THINK that never before in all our experience have we had on hand and in prospect such a wealth of valuable matter for publication as for the present year. Doolittle's special series of articles alone will undoubtedly attract wide attention, and be the means of emancipating some bee-keepers from the vexations of natural swarming at outyards where comb honey is the object. The Alexander series of articles will continue to lighten the burden of the bee-keeper; and R. F. Holtermann will speak from his large experience as a bee-keeper and bee-journal editor.

We have in hand also a fine lot of special articles on important subjects, which will be given to our readers as our space and the season will permit. The article by Rev. Frank McGlade, illustrated by our special artist, in our Dec. 15th issue, on the facetious order, comparing poultry-keeping with bee-keeping, to the disadvantage of the former, has called forth a lot of valuable rejoinders from bee-keepers who are also



poultry-keepers, showing conclusively that the poultry business is a paying proposition when rightly managed, and, what is more, is a valuable adjunct in connection with bee-keeping. These special articles alone will be worth the subscription price to GLEANINGS for a year.

Moreover, our correspondence course in bee-keeping is drawing out a valuable series of questions in the Heads of Grain Department, which will be answered by the editor, based on his experience, and on his knowledge of the various localities where the questioners reside.

We hope, along in the middle or the latter part of summer, possibly earlier, to get out GLEANINGS in our new publishing house that will be equipped with the latest machinery. Our present dress of type is pretty badly worn, owing to the large runs we have been compelled to make on account of the rapid increase in our list of subscribers, of an average of 800 per month since Jan. 1.

My younger brother, H. H. Root, lately from the Northwestern University, is now my assistant and associate. He takes to editorial work like a duck to water. His department is that of sifting out the copy and otherwise preparing it for publication. This leaves me more free to study the needs of our subscribers, to experiment with and work with bees; in short, bring the journal in a general way up to a higher standard than it has been before. We are striking out for 50,000 names, and it looks now as if we were going to reach that number. The strange thing about it is that these new readers are not new bee-keepers, but mainly old ones who have never before taken a bee-paper. Instead of selling their product "at any old price" they will now keep in touch with the market and sell accordingly.

#### CO-OPERATION IN THE HANDLING AND SELLING OF HONEY AND BEE-KEEPERS' SUPPLIES.

THE principle of co-operation is magnificent; it is Christian in that it aims at mutual helpfulness. In short, it seeks to stimulate brotherhood in its best sense.

Whether co-operation can be made a success or not depends somewhat on the individual membership; but, more than all else, on the character and business ability of the manager elected or appointed. If he is a good man, and will do business on business principles, pay cash in advance, or give satisfactory security for all goods purchased in the name of the society, he will have no trouble about buying goods. In short, he must do precisely what the dealer does, and often for little or no pay. In the majority of cases he soon tires of this, and the co-operative feature is dropped.

We have probably done business with co-operative societies as long as or longer than any other manufacturer in our line, for it is no new thing with us. But because of the fact that some co-operative societies are often not willing to assume responsibility for con-

tracts entered into, and because they have been disinclined to pay a good manager a fair salary, the plan has more often been a failure than a success. There are two or three marked exceptions, and these exceptions are based almost wholly on the essential factors, enumerated.

In my opinion the only way to make co-operation succeed is to incorporate the society; then make each member not only subscribe, but pay for a liberal amount of stock. When this is done he is compelled to take his fair share of responsibility. Any business, to succeed, must have capital, for it always costs to do business. The plan proposed by F. E. Brown, looking toward co-operation, at the National convention at St. Louis, was perfectly practicable, but it appears that bee-keepers would not subscribe for the stock in sufficient numbers to do business, and so it has generally been.

It has been assumed that we would be hostile to the principle of co-operation—a perfectly natural assumption, in view of our dealers. This is a mistake; but we have run across in our experience so many instances where the plan was tried and failed, involving severe losses on the part of some one, that a word to the wise will be sufficient. Just as I write these words, information has come of another society that has failed, and left its manager in a "hole."

We have always urged co-operation in selling honey; and to be consistent we could hardly condemn the same principle when extended to the buying of supplies when rightly applied. I see no reason why a manufacturer would not sell to a society properly organized and financed, providing that such society did not publish the wholesale rates it secures, to the outside world that has no interest in the organization, and probably never would have.

#### THE BRANCH-HOUSE QUESTION.

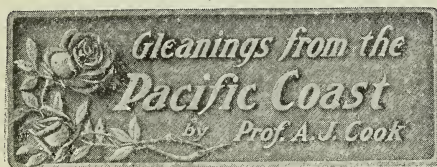
This whole question brings up the matter of whether it is cheaper and better to organize bee-keepers into co-operative societies, or do business through the medium of an agent or middleman. As a matter of fact, there is a certain cost in manufacturing the goods. To this cost must be added the expense of selling. No matter by what plan, this item will be nearly equal to the making.

Some have argued that the middleman—that is, the dealer or distributor—should be abolished and sell direct to the consumer, saving the middleman's profits. The principle is very pretty in theory, but it has not proved to be satisfactory in practice. Years ago, when we shipped all goods from Medina direct to the consumer, the majority of bee-keepers would not order their goods until almost the last minute, then they wanted them instant. They would wait until they were sure of a honey-flow, then clamor for the goods. When they could not get them, then the poor manufacturer was the recipient of all kinds of complaints—bees swarming, no hives nor sections. Under the present plan of having dealers and distributing-

houses, goods are stored all over the United States for immediate shipment, and in sufficient quantities in each locality to take care of the local needs. By this plan time is saved and freight rates are considerably reduced, for the goods go almost the entire distance to the consumer at carload rates. Then there is only a small local freight charge direct to the consumer. Again, the customer can go to the nearest distributing-house, look over the line of goods he desires to purchase, and be advised as to his needs for the locality in which he is located. Say what we may, all business depends on the middleman, always has and always will to a great extent.

Taking it all in all, the principle has given universal satisfaction to bee-keepers, except in some quarters where there is a feeling that the branch-house business adds materially to the cost of the goods. This feeling has been entertained by some honest men, concerning whom we have the highest regard; but they were mistaken as to the facts in the case. It costs about as much to store goods in one place as another. If goods are all stored at the factory, and there should be a fire, the loss would be correspondingly great; but by having them distributed all over the country the risk is reduced, and the same clerical force that would be necessary at the main office to take care of the immense volume of correspondence is placed where it can look after the business to the best advantage, and where it can come in actual contact with the local needs of the vicinity.

Best I may be misunderstood. I will state that I am not trying to compare co-operation with the branch-house plan, for, as a matter of fact, each has its advantages, and, I may say, disadvantages as well.



#### ORDERS OF INSECTS.

We have noted that all the orders of insects thus far treated, if we may except the beetles, and in a sense the thrips and the sub-order *Neuroptera* among the lace-wings, undergo in their development incomplete transformations; that is, all are much the same in all stages of development. We have also observed that all have mouth-parts for biting and eating, if we except the bugs and the thrips, although the latter really do suck. The wings are various; but if we except the one family of scale insects—*Coccidæ*—the females of which are wingless and the males have but two wings, all so far possess four wings. We next consider the

#### DIPTERA, OR TWO-WING FLIES.

These well-known insects are at once recognized by their one pair of wings, which fact is announced in the name *Diptera*, which is from the Greek, and signifies two wings. These may be very simple, as seen in the notorious Hessian flies, and wheat and clover-seed midges, or quite complex as illustrated in the common house-flies, horse-flies, robber flies, etc. Like bugs, the flies, or *Diptera*, all suck. They, like beetles, butterflies, and bees, pass through very complete transformations in their development. The larvæ are footless, and are called maggots. Their mouth is simple, and works to scrape or wound the tissue on which they subsist. The pupa is often seed-like, and is protected only in the last larval skin. These seed-like pupæ—"flax-seed" state of the Hessian fly—are known in science as *puparia*, each a *puparium*.

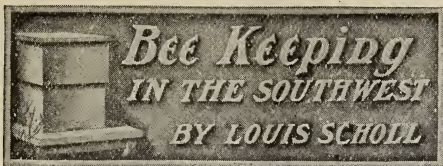
No insects are better known to man than the two-wing flies, or *Diptera*. The house-flies are ubiquitous, and in the warm days of the year are always with us at meal time, and never wait for invitation. They are equally insistent as we essay an after-dinner nap. Fortunately they cease from their vexing annoyances as the night comes on; but not so the equally well known and more dreaded mosquito.

Many of the *Diptera* are among our most serious insect-pests. The Hessian fly and wheat-midge destroy our most important cereal to the tune of many millions of dollars, often in a single season. The *Anthomyiæ* also are serious pests in the vegetable-garden, while the *Trypetæ* are dreaded foes of the fruit-man. Others, like the syrphus flies and robber-flies, are very good friends in destroying other insects, though the robber-flies are not as careful to discriminate as we might wish, and often kill our honey-bees; yet on the whole I am quite sure that they do far more good than harm. The horse flies bite or stab our horses and cattle, and give a cruel thrust with their strong sharp beaks. The sheep-tick is no mean foe to our valuable flocks, while a close relative is the bee-louse, which in some of the warmer regions is no slight enemy of our pets of the hive.

Of late the mosquito has become more interesting to us as the necessary agent in the spread of malaria and yellow fever. As the Texas tick must be present to carry the fatal Texas-fever germs from one bovine to another, so no one would ever have malaria or yellow fever except that the little sporozoan germs or animals were carried to the blood by the mosquito. There is some evidence that the flea, also classed by Linnæus with *Diptera*, though it is very distinct in its structure, carries the plague of leprosy as the mosquito does malaria.

It is interesting to know that the maggots of the common house-fly work on and develop in the manure of the horse-stable. If, then, our automobiles drive the noble horse from us it will at the same time rid us of the fly nuisance.





Watch the weaklings!

Pinch the heads of the worthless queens.

Will Texas get the National convention this fall?

It is the good queen and the good management that work to the best advantage in an apiary.

"Water-white" is the grade of my honey, yet I can not call it "white as water," according to S. E. Miller, in *Progressive*. If "clear" should be used instead of "white," how would "water-clear" sound for a term in grading honey?

If, as is estimated, 3,500,000 visits from the bee must be made, and 62,000 000 heads of clover must be deprived of nectar to collect one pound of honey, how many acres of clover are required to yield an average of one hundred pounds per colony in an apiary of one hundred colonies?

The fellow who thinks he can not afford to buy a good smoker that he needs is the fellow who can't afford to do without it at any price. It's a waste of time and money to bungle along with some bad or worn-out smoker. Don't tolerate it. A good new one will give better satisfaction, cause less annoyance and delay, and will pay for itself in a short time.

The time to put the apiary in "tip-top shape" is at hand. The yard needs a general "cleaning up." The "floors" of all the colonies should be cleaned to free them of the winter's "droppings." The roofs should all be good ones, or be replaced by such. While doing this, notice which colonies are weak or short of stores, and need feeding. Supply all these with syrup, and those that are not queen-right should receive "one brood" or "two broods" as needed from a stronger colony from which to rear a new queen, and also to strengthen them. Unite any that are too weak to pull through. While you are doing all of these things you will still find sufficient time in which to learn, between jumps, some of our "short apicultural terms."

#### BEE-VEILS SHOULD BE USED.

A beginner should never undertake to hive a swarm or work with bees without being well protected by a veil and gloves. An

experienced apiarist works often for months without either veil or gloves, and, indeed, they are a nuisance. The apiarist, however, knows the nature of his bees, and knows how to manage them to avoid stings; yet it is really folly not to use a bee-veil at *all* times. It can never be known what accident may happen, and result seriously. If the veil is not worn constantly over the face it should at least be kept over the hat so that it can be drawn down upon a moment's notice when necessary. For years I had no use for a veil about my face. It was in the way, and did not allow a free circulation of air, so beneficial in a hot climate. Being so overly tall in person it was also quite an annoyance, for limbs catch on the veil, especially when in a rush. But after experiencing several "stinging-scrapes," and working in large apiaries of bees where veils *had* to be worn, and after several instances, more or less serious in nature, of stinging accidents had come under my observation, it was decided best to use a veil at all times and places; hence I prefer to wear a veil whenever among the bees. A good veil does not cost very much; and if made at home the cost is only a trifle. I prefer black cotton tulle with silk facing only, for cheapness, and the silk face is not really necessary except for minute work. For rough work the tulle is all right, and black can be seen through better, and does not blind the eyes as white does.

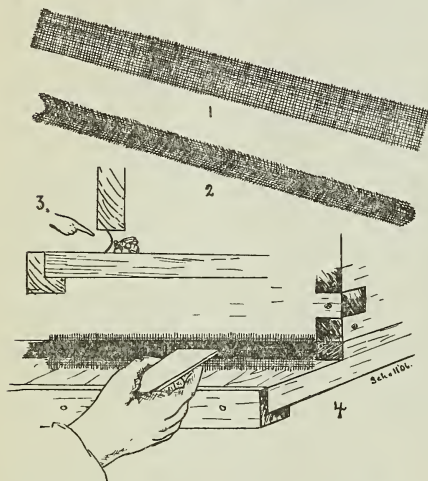
#### HOW FAR DO BEES FORAGE PROFITABLY?

An item of interest that I came across while with Mr. W. H. Laws in some of his outyards about twenty miles west of Beeville was the following: The bees in his Dowd yard were being fed, giving them several hundred pounds of syrup in a trough, outside, and some little distance from the apiary. All colonies were soon busily at work storing it away. When they were well under way, or about the second day, a visit was made to neighboring yards to ascertain to what extent the bees there might be partaking in the fray. Another apiary belonging to Mr. Laws, half a mile away, was working as busily in storing the syrup as the first. An apiary belonging to a neighbor one mile distant also worked as busily at it, the whole number of colonies in the yard engaging in it. But of an apiary of 75 colonies  $1\frac{1}{2}$  miles away, only 14 found the syrup being fed, while only 7 out of 60 colonies, 2 miles from where the syrup was being fed, found it. These few colonies worked just as busily as those in the Dowd yard; but on account of the distance, and, probably, a later discovery of the syrup, they did not store as large an amount per colony. The remaining colonies of the two latter yards,  $1\frac{1}{2}$  and 2 miles distant, did not discover the syrup at all during the three days of feeding. This should help us in getting at an idea of how far bees may forage profitably, and also the distance out-apiaries should be located from each other. It should also give us a clew by which to explain why one colony may store

more surplus during some seasons than others in the same yard. While there may be no bloom in the immediate vicinity of an apiary, some colonies may find plenty to do some distance away.

#### HOW TO CLOSE HIVE-ENTRANCES.

A unique way of closing hive-entrances with screen wire cloth is that of E. R. Jones, of Beeville, Texas. It is the cheapest and quickest that I have ever seen or heard of. I have tried the scheme myself while moving colonies, and was highly pleased with it.



The wire cloth is cut into strips (Fig. 1) twice the width of the entrance to be closed, and exactly the inside length of the same. For the standard  $\frac{3}{8}$  inch-depth entrance the strips would be  $\frac{3}{4}$  inch wide; for the  $\frac{1}{2}$ -inch entrance,  $1\frac{1}{2}$  inches. The strips are next bent into shallow troughs (Fig. 2) by placing them lengthwise between two straight-edged boards and letting half their width extend out to be bent down by the use of another board.

On closing the entrances, simply lay one of these strips down on the bottom-board with its curved "back" in the entrance, and by means of a piece of section box (Fig. 4) push it into place about half way under the end of the hive so it will be in position as in Fig. 3. This finishes the job. The strips are easily pushed in but not out. The sharp projections of the cross-wires of these strips will "stick" into the wood above and below, and form a "truss" in such a way that, the more pressure is put behind it, the firmer the grip will be in the wood. It takes "quite a pull" to remove them when releasing the bees. The point of a pocket-knife is inserted at one end, then pryed out, and the screen is caught by the thumb and pulled out with a hard quick jerk. There is no danger of these entrance-closers being pushed in or torn off *en route*, as they are completely hidden out of the way. Mr. Jones has shipped bees closed in this way in a car several hundred miles without any

trouble. When shipping out small lots of nuclei he fixed them in this way also. Care should be taken not to get the strips too wide or the "teeth" will not stick into the wood. They are simply inexpensive, requiring but little wire cloth, and no strips of lath and nails; besides the time required in the preparation of many of the entrance-closers now in use.

#### WHAT COUNTIES IN TEXAS WOULD YOU SELECT TO START IN TO KEEP BEES FOR A LIVING?

Many questions of like nature were sent to me, and I have tried to answer them as best I could. More or less delay occurred, however, and, to kill several birds with one stone, some of these questions will be answered in GLEANINGS.

First I would refer you to the map of Southwest Texas, p. 1295, 1905. There is a section of country in Dimmitt and Zavalla Counties, extending from Carrizo Springs, in Dimmitt Co., to Luma Vista, and Batesville, in Zavalla Co., which impressed me very much when I traversed that section a few years ago. It is a good locality for bee-keeping, with an abundance of the main honey-yielding flora, and lies in what is known as the "artesian belt." Artesian wells are numerous, and obtained at no great depth, with an abundant flow of fine water. The only consideration, to some, would be the distance to a railroad shipping-point, which is Dille, on the International and Great Northern Railroad, to the south of this section. The roads are quite good, however, as this is not a sandy country, and "freighting" the crop by wagon could be resorted to profitably.

There is another section of country further south. This is located below Cotulla, in La Salle Co. This locality lies along the banks of the Nueces River, and offers locations for bee keepers that I am well impressed with. There is one section in particular, of 42,000 acres or more, owned by people who are offering for sale any amount of it at from \$6 to \$8 per acre for unimproved land. The section has sixteen miles of river front, which makes it quite valuable, as some of it can be irrigated. The shipping-point here would be only about fifteen miles distant.

A section that is drawing most attention is the great territory of country near Brownsville, in the most southern portion of the State, near the mouth of the Rio Grande. This section has only lately been opened up by the extension of a railroad; and as more railroads are built it will mean the opening of many new and unoccupied locations for bee-keeping.

Besides these sections there are numerous localities scattered throughout the entire territory of Southwest Texas that are excellent apiculturally. These will have to be sought out.

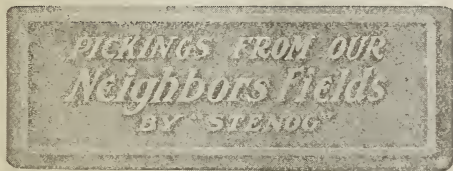
I do not know prices of land, as that varies very much in different sections. The land, too, varies. It should be remembered that all this information is given for the benefit



of the readers of GLEANINGS, and especially those who have asked for this information. We are not desirous of more bee-keepers "flocking" here, and are not advertising for them, for we have lots of them; but to such, who want to know something about the country, this has been given, and we hope that it will be appreciated.

[Mr. Jones' entrance-closer is as simple as it is unique, and I am not sure but I have seen it in use somewhere in the West; but I have never seen it in any publication before. We have marked it to go in the next edition of the A B C book, and that is proof enough that we regard it as something extra good.]

You will have to be careful how you invite bee-keepers into your State or you will get a bees' nest (of bee-keepers) in your hair. On the other hand, it may be said that you have the biggest State in the Union, and a good deal of unoccupied bee territory, provided one is willing to sacrifice the comforts of city or town life and move out into the desert; for be it said that, strange as it may seem, there are many good bee locations in the desert portions of Texas. I have traveled through localities in that State where nothing would grow except mesquite, guajilla, and the like, and yet these, despite the awful dryness and the parching sun, would yield immense quantities of finely flavored light-colored honey; although it is but fair to say that mesquite would more properly be called an amber.—ED.]



I have just been reading in *L'Apiculteur*, one of our French exchanges, an account of Mr. Frank Benton's visit in Savoy, a mountainous district in the southeast of France. As there are many reasons just now for the interest felt in Mr. Benton's journey to the East in search of something new in the bee realm, I have felt excusable for desiring to lay before the readers of this journal a translation of the article in question, in order that bee keepers here may know how our representative was received in France. Besides this, it throws some very pleasant sidelights on Mr. Benton's personality.

The celebrated American bee-keeper, Mr. Frank Benton, being just now on a tour through Europe, I have just had the pleasure of passing two days in his company, July 7 and 8, at Albertville, Savoy, at the home of Mr. Mont-Jovet.

Mr. Benton is known to bee-keepers throughout the entire world by his writings, his researches, and his work in all kinds of bee culture. In particular is his name connected with the Benton cage for sending queens by mail across continents and oceans. He is especially popular in the United States, where for several years he has exercised a great influence in apicultural progress, as much by the great value of his direc-

tions and counsels as by the legislative measures which he has brought about, and the establishment of model apiaries in the different States of the Union, in his capacity as bee expert of the Department of Agriculture, Washington. He has established a national apiary in that city, where queens are received from the principal foreign breeders.

Mr. Benton has traveled much. He has visited Greece, Palestine, Egypt, East Indies, Ceylon, Austria, Italy, Germany, France, and has traveled all over that immense country the United States. He lived for seven years in the island of Cyprus, and four at Munich, Bavaria, rearing Cyprian and Carniolan queens which he sent to the United States and Canada. In connection with Mr. Baldensperger, whose name also is well known, he has brought the rearing of queens to a high degree of art.

Just now Mr. Benton is on a mission from his government to make a comprehensive study of all races of bees, and particularly two varieties peculiar to the East Indies and Ceylon, known to naturalists as *Apis dorsata* and *Apis zonata*, both of which are about double the size of common bees, and having, on this account, tongues longer than those of European bees, which will enable them to work on flowers in a way that ordinary bees can not.

Mr. Benton has also undertaken the task of acclimatizing the pure Caucasian bees in the Rocky Mountains, especially in Wyoming, the climate of which resembles the cold regions of Caucasus. Knowing that drones transmit their traits of character and temper to their kind, and that queens transmit their aptitude for work, and fecundity, he has studied the possibility of realizing practically the crossing of Cyprian queens, the most fertile breeders of all, but the most aggressive, with Caucasian drones, a very mild race, hoping thus to obtain a mixed strain which will combine all the qualities of both races and at the same time eliminate their defects. There will thus be obtained at the same time a secondary result more important—that of favoring the diffusion and popularizing of apiculture by dispensing with stings, which hinder many persons from keeping bees. Mr. Benton will at the same time study all honey-bearing plants, known or unknown, and investigate the means of importing and acclimatizing in the United States those foreign plants which are the best yielders of the nectar. It will thus be seen that his trip is of much consequence to American apiculture.

Leaving Washington June 2, Mr. Benton has already visited a large number of bee-keepers in England, France, Germany, and Switzerland. He is to continue his explorations through Italy, Austria, Greece, Caucasus, Afghanistan, Hindoostan, the Nepal, Java, Borneo, Japan, the Philippines, Sandwich Islands, back to San Francisco, thus having gone around the globe.

Mr. Benton says the American government appropriates \$50,000 a year for the development of bee-keeping. It will thus be seen that we are far behind America. He is 53 years old, medium stature, gray mustache, open countenance, tireless on the march, and indifferent to the heat of the sun. His face shows the effects of his laborious voyages, but they have in no way diminished his activity. He speaks French perfectly, although he has not practiced it for ten years, sometimes thinking for a moment for the proper word. He speaks also several other European languages.

Mr. Benton is a man of very agreeable presence, a good talker, and he held us charmed for two days, and excited much interest on our part while relating some of the adventures of his voyage, which would form a very interesting volume. We were much surprised at the profound knowledge of our eminent visitor. Before leaving he selected several choice Italian queens to send to America, and on the 9th of July took the train for Italy.

F. FENOUILLET.

A French exchange relates a curious case that occurred in France. A certain man there had a chronic inflammation of the eyes, that baffled the skill of the physicians. It so happened that he was stung one day on the left eyebrow. The next morning, to his great surprise, the light was no longer painful to the left eye. Attributing the good result to the action of the sting, he applied one to the right eyebrow, with exactly the same result. Strange as the case may seem, it is no more incredible than the many instances of cures of rheumatism that have been reported for years.





#### DOES HONEY FROM THE SAME PLANT VARY IN COLOR IN DIFFERENT LOCALITIES?

On page 58 of the A B C of Bee Culture it is stated that "Where white clover does not grow spontaneously, alsike is, undoubtedly, ahead of every thing else now known. It not only produces honey in large quantities, but the quality is not excelled by any thing in the world." Now, this is saying a good deal, and it is not my intention to dispute it. Mr. Doolittle, in his comments on this statement, says, "The quality is excellent, as you state; but the color of alsike honey, in this locality, is decidedly poor, it being of a reddish-pink shade. When clear, or when it is mixed to any degree with our first basswood honey, as it often is, such honey has to go as second quality on account of its color."

He referred to comb honey, of course. While the statement on page 58 of the A B C book does not say that the color of alsike is light, or white, I think almost any one would take it so; but whether so or not, it certainly is white in some places where it is grown.

I have given the above, not for the purpose of controversy, but rather for the purpose of stating an exceedingly interesting fact, or fancy or fallacy. Can or does any plant produce honey of one color in one place and another color in another locality? I may as well admit right here that I have, for quite a fraction of my life, believed it was so; but I have at last come to doubt it. I remember very well extracting some honey which, I had every reason to believe, was from red clover, more than thirty years ago. I remember very well, also, the pink shade of this honey, and have many times told how red-clover honey was of a reddish or pink color; and now after so many years I have come to doubt my own statements.

What would we think if some one were to tell us that the basswood honey in his section is of a pink or red or brown color? I fear most of us would do, as many of our judges do, reserve our judgment till some future time before we regarded it as a fact.

It would seem to me now quite as reasonable to expect the flowers of a given plant to change their color as that the nectar of the flowers should change its color by being grown on a different soil or in a slightly different climate.

How, then, do I account for the difference in certain kinds of honey in different years or localities? I account for it very largely, if not wholly, in the mixing of the honey from different sources, in the hive, by the bees, when gathered and stored. We notice

a great difference in clover honey, or honey gathered during the honey season, in different years or localities. While I live in what might be called a clover section, our honey gathered during the clover season in different years varies from "water white" to a wine color, or, perhaps, more accurately, as Doolittle describes it, a reddish-pink shade, although some years I think it rather even darker than that.

Do the seasons so affect the clover as to cause it to change the color of its nectar, and become strong in flavor as well? "Doth the same fountain send forth sweet water and bitter?" I think not; but I have noticed this: That, just as the clover honey is likely to be short, we are likely or quite sure to get more color and poorer quality. As a rule our honey in Western Vermont is of a fine white or very light-amber color; but if the clover fails to yield early in the season, or an open winter has killed most of the clover, then look out for a strong colored honey, gathered, without much doubt on my part, from white daisies and sumac.

I was amused when, in Chicago some three or four years ago, I met Mr. S. A. Niver. He showed me many favors, and gave me some interesting facts. Among other things he told how he raised and marketed honey in New York State, where he formerly lived. One year he said he had a lot of honey a good deal mixed. Early in the season the bees stored a reddish honey in the sections, and then white basswood honey, and finished them with dark buckwheat. Possessing a large development of the commercial instinct he labeled it "Fancy Mixed," and sold it for a good price. It was certainly mixed, and I have no doubt a fancy article of its kind. I inquired the source of the reddish honey gathered early in the season before basswood. He said he did not know. I then inquired if they had the white daisy in that section, and he informed me that the country was overrun with it.

The past year has, in this section, been very favorable to the growth and bloom of the clovers, and both white and alsike were in great abundance, and the honey gathered from these sources was undoubtedly mixed very largely with some other, yet the quality was what might be called "water white," at least during the best of the season, and I have come to think that all shades off from this are caused by the mixing-in of honey from other sources known or unknown.

In very marked contrast to the past season was that of 1882, when, owing to the previous open winter, almost all clover was killed, both white and red, and what little alsike was grown at that time. Probably some newly stocked pieces of clover showed some signs of life, and gave some flowers; but it was difficult to find it. I feared my bees might starve; but they were not discouraged, but worked on what they could find; and as there was an abundance of daisy bloom in my home yard they filled their hives, and some of them stored considerable surplus; but it was all of the reddish kind. I believe



I have a sample of it now; and, although nearly twenty-five years old, it has never granulated.

But some one will say, as did Mr. Niver, "I never saw a bee on white daisies." Well, I have, but it is not very often that we do. I think I might say further that we feel sure as to the source of this honey. During the past season we have seen very few bees on clover. Indeed, I think when there is a great abundance of flowers there are fewer bees seen on them than when there are but few flowers. In seasons when clover fails to yield early in the season we sometimes have the sections started nicely, and just enough of this reddish honey put in some of them to injure their quality, the same as Doolittle speaks of. When this honey is first gathered it smells and tastes as a field of daisies does. It is rarely very abundant, and, apparently, bees wear out rapidly while gathering it.

From information received from buckwheat sections I am under the impression that the fine appearance of clover honey in those sections is sometimes injured from being mixed with a dark honey gathered from volunteer buckwheat during clover bloom. In thinking over this subject it occurred to me to look in the A B C of Bee Culture to see what it had to say about the honey-producing quality of these somewhat despised daisies, and did not even find it included among those that produce honey. I have received this honey, or what appeared to be, through the mails, sent me as sumac honey; and I have no doubt sumac honey was mixed with it, as both bloom together.

Now, if any one can bring proof, beyond the shadow of a doubt, that the flowers of any given plant actually change color on different soils, or in slightly different climates or seasons; if it is white in one place and dark or reddish in another, it would establish an exceedingly interesting botanical fact, providing the change were sufficiently pronounced as to affect materially its commercial value, as Doolittle suggests.

This may all seem a very small matter, and I would not claim it a large subject; and yet if we are in the habit of accounting for inferior grades of honey from sources of good repute to some mysterious influence of soil or climate, I fear we shall lose some grains of truth that might be of value to us all.

It would be an excellent thing, and a most interesting thing as well, if bee-keepers could or would collect different kinds of honey of undoubted purity for their own pleasure, and for the information of others interested. Few things will interest a crowd quicker than showing samples of different kinds of honey. This would be good work for the boys winter evenings. The expense of sending samples through the mails is very small, and will well repay the trouble.

[On one of my western trips there was nothing, perhaps, that surprised me more than to find alfalfa honey on the amber or-

der in some localities where nothing grew but alfalfa, while in other localities in the West it had the same color as the ordinary clover of the East. Both of the alfalfa sections were irrigated, but the soil was different, and the number of cuttings varied. This, it would seem to me, is a very clear case where the soil and climate do affect the color of the honey from the same plant. I might point out the localities where the darker alfalfa is produced; but some of the resident bee keepers would not thank me for advertising the fact that their alfalfa was not as light in color as that produced in some of the other irrigated sections.

In the East it may be very hard to prove, in view of the great variety of plants that may or may not be in bloom, the effect of climate and soil on the color of honey from any particular plant.—Ed.]



#### CURING AND KEEPING COMB HONEY.

"Good morning, Mr. Doolittle. My name is Alderman, and I have come up north from Florida to have a short talk with you about curing comb honey."

"All right, Mr. Alderman. But aren't you a little early in the season in talking about comb honey and the curing of the same when we have snow on the ground?"

"Perhaps so, for you northern people, and it is a little early for us; but I wished to know at this time so I might be fixing what I may need by way of preparation, before I am too busy to do so with my season's work. Will you tell me how you fix your room for comb honey, so it will keep honey after it is off the hives?"

"The most necessary part about a room for comb honey here at the North is to have the roof and sunny sides painted some dark color which will absorb the rays of the sun so as to warm up the whole interior during the day time to from 85 to 100 degrees; but you might not need the dark paint in the South for this purpose. You will know better about this."

"What is the object of keeping honey so hot? I have thought of some way of keeping it cool."

"The object is to keep as near a temperature as possible with that which the bees use when they are keeping honey; for you know that, the longer the honey stays on the hive during warm weather, the better it grows, save the one thing of discoloring the nice white cappings of the combs. Were it not for this coloring of the white combs, and lack of room on the hive, there could not

possibly be a better place to keep honey than on the hive, with the bees covering it. But as this can not well be, the next best thing is to put it in a room which will keep it as near as possible where the bees would keep it were it left on the hives."

"I see. But do the bees keep a temperature as hot as that?"

"The temperature at which brood is reared is from 92 to 98, which is about the same as is needed for the working of wax by the bees; and while we can not keep quite as even a temperature as the bees do, yet we can approximate quite nearly to it; for where the temperature of the room can be kept at 100 degrees during the afternoon of any or every day, the pile of honey we have in the room will become so thoroughly heated through that it will hold this heat till the next day, when the sun comes up to warm it up again; and in this way we have our honey growing better and better each day, similar to what it would be doing if left with the bees, while we do away with the travel-stain which would come to it were it left in care of the bees."

"Yes, I begin to see now. But suppose the temperature goes too high in our hot climate. Might there not be danger here?"

"Possibly the temperature of one of our curing-rooms might run high enough in your climate to melt the combs sufficiently to allow the honey to fall from the sections; but I hardly think so, and especially if you provide for ventilating the room as we do here."

"What means do you employ for ventilation?"

"My honey-room has three windows in it and a door. These all have screens on them; and whenever the temperature of the room rises to 95 or 100 degrees these windows, and sometimes the door, are left wide open. This not only keeps the room from becoming too hot, but helps very much, through a circulation of air all through the room and pile of honey, thus carrying off all moisture from the honey to a still greater extent than where the room is kept shut all the while. This is also something on the principle that the bees cause the honey to become better in quality when it is left on the hive."

"What do you mean by that?"

"Through their fanning at the entrance, on hot days, the air is caused to circulate all through the hive, thus carrying the moisture out into the open air; for this ventilation part is one of the great items with the bees by way of reducing the thin nectar, as brought in from the fields, to the nice ripe honey which we so much enjoy."

"Well, the bees do know what they are about, don't they? But how do you pile your honey when it is in the room?"

"That depends upon how it is left. If you take it from the supers then you will want a platform fixed so that none of the honey comes nearer the floor than one foot, for it is damp down on the floor, especially where the honey is set right on the floor so as to shut off all ventilation. Then the top of the platform should be made of slats

strong enough to hold the weight of honey you expect to place on it, and these slats should be so spaced that the edges of the sections just rest on them, leaving the space under the larger part of each section all open to the air."

"What is that for?"

"That is so that the air can go all under and through the pile in every direction, the same as it would do were the sections left on the hive; for if you leave all sections a bee-space apart, the same as they are on the hive, you will have ventilation going on between every section in the whole pile, no matter if you have five to eight tons in it, as I did one season."

"I had not thought of that. But suppose I wish to leave the sections in the supers, just as they come off the hives, till I wish to send the honey to market—what then?"

"Fix your platform just the same, only have it so that the edges of the super rest on it, the same as the sections did by the other plan. Now, after you put a super on the platform put an inch-square block on each of the four upper corners to the super, and on these blocks set your next super, and so on till your pile is completed. In this way you have things fixed as before, and with very much less work, if you have extra supers enough so that you can spare all full ones till the end of the season."

"I see now. This last is much the easiest way, and I will make a few extra supers, I guess, so I shall have all I need. Is there any thing more?"

"Yes, there is one thing I forgot to say in our talk; and that is, no super or sections are to touch the side walls to the room in any place. I generally see that they are at least two inches out from the walls on every side, for the air seems more loath to circulate around the sides of the pile than up through it."

"How long will honey keep in this way? I want to keep mine until there is a demand for it; and if the demand does not come the year it is produced, I want to keep it until there is such demand."

"The honey will keep getting better and better just as long as the proper conditions are kept up. We have no trouble here till the dark cloudy fall days come on, with their mists and rains. Then we have to resort to artificial heat, such as oil heaters, stoves, etc.; and if you have such weather down there in winter as we do in October and November here, you will have to employ artificial heat as well or else have your honey begin to deteriorate."

"And can I keep section honey for a year or two, if I keep the temperature from 80 to 100?"

"Yes, certainly. During winter, here at the North, we run our furnaces and coal-stoves all the while, night and day; and by piling the honey in such a heated room, and throwing a sheet or something of the kind over the pile of honey, to keep the dust off, it will keep just as well through the winter as at any other time of the year."



"You think that is right?"

"I know it—don't think any thing about it; for I once kept some section honey standing on the mantel-shelf behind the stove, winters, and in the honey-room in summer, for three years; and when we used it at the end of that time it was the thickest and best-flavored honey I ever tasted. The only trouble here at the North would be that it would require considerable labor and fuel to keep a whole crop of honey a whole year through. The question would be whether we could get enough above the usual selling price in the fall to pay for this. If we were sure that any certain year of failure would follow one of bountiful yield it might pay; but with the large area of our country it is a rare thing that the failure is great enough the whole country over to raise the price sufficient to cover the cost of keeping the honey."

"Well, I think it can be made to pay in the South, and I am going to try the matter. I thank you very much for sending so much time with me."



## HOW SHALL WE MAKE OUR INCREASE?

How to Control Swarming at the Same Time;  
a Revision of the Former Article.

BY E. W. ALEXANDER.

Our readers will remember the article on this subject by Mr. Alexander, in our April 15th issue, 1905. Very few articles, probably, have received the comment that this one has; and in view of this we have asked our correspondent to go over the same ground again, incorporating the various comments and criticisms. It is very seldom that we reprint an article, but we are glad to do it in this case, believing that it will be appreciated in its revised form.—Ed.

This subject has received, perhaps, as much thought and study as any other one thing connected with bee-keeping, and I will try to show that, with proper management, you can have two colonies, each nearly equal to what the mother colony would have been for the clover harvest, if not divided, and fully equal for a later harvest.

In calling your attention to this matter I take it for granted that you keep bees like myself, for the purpose of making the most money out of them you can, regardless of increase or the number of colonies you may have. Simply make what increase will add to your present season's crop of honey. In the first place, let me impress upon your mind the importance of doing every thing in your power, not only to build up all your colonies as strong in bees as you can after tak-

ing them from their winter quarters, but to keep them in that condition to the end of the season; for without strong colonies we can not expect much surplus. As the day is now past when natural swarming is desired by any progressive bee-keeper, we will turn our attention to some practical way of making artificial increase.

The most common way of doing this is either forming nuclei and afterward building them up into strong colonies, or dividing a strong colony at once by putting the greater part of the bees with their queen in an empty hive on the old stand and setting the old hive containing the brood away some distance in a new place. Each of these methods has some serious faults. The nucleus method usually requires so much time that frequently the best part of the harvest is past before they are in condition to take advantage of it. They also require much work and attention, and the other way of dividing the strong colony is all wrong in every respect.

I think I hear some of you say, "Yes, but that is about the same as natural swarming, only the old hive is set on a new stand."

I will admit it is something the same, though not half so good; for in natural swarming the old hive on its old stand retains part of its working force, and matures all its brood; whereas if divided, as is frequently done after its queen and most of its working force are left on the old stand, and it finds itself in a new place without its queen, the greater part of the bees that have ever been out to fly will return to the old stand and join the swarm, leaving the old hive with all its brood in a deserted condition. Then the few remaining bees will destroy every egg and nearly all the uncapped larvæ. Here you lose enough brood, many times, to make nearly a swarm.

After studying on this subject for many years, and trying every thing I could think of to prevent this loss of brood in making our increase, and at the same time avoid the loss of valuable time in fussing with nuclei, and at all times keeping every colony in good condition to take advantage of any unexpected harvest that might come, I hit on what I consider the most practical way of making increase of any thing I have ever tried or heard of. It is this:

When your colonies are nearly full enough to swarm naturally, and you wish to divide them so as to make two from one, go to the colony you wish to divide; lift it from its stand and put in its place a hive containing frames of comb or foundation, the same as you would put the swarm in providing it had just swarmed. Now remove the center comb from your empty hive, and put in its place a frame of brood, either from the hive you wish to divide or some other colony that can spare one, and be sure you find the queen and put her on this frame of brood in the new hive; also look it over very carefully to see that it contains no eggs or larvæ in any queen-cells. If it does, destroy them. Now put a queen-excluding honey-board on top

of this new hive that contains the queen and frame of brood with their empty combs, then set your full queenless colony on top of the excluder; put in the empty comb or frame of foundation, wherever you got your frame of brood, and close the upper hive except the entrance they have through the excluder into the hive below. Now leave them in this way about five days, then look over the combs carefully, and destroy any larvæ you may find in queen-cells unless they are of a good strain of bees that you care to breed from, for they frequently start the rearing of queens above the excluder very soon after their queen has been kept below by the excluder. If so, you had better separate them at once; but if they have not started any queen-cells above, then leave them together ten or eleven days, during which time the queen will get a fine lot of brood started in the lower hive, and every egg and particle of larva that was in the old hive on top will have matured, so it will be capped over and *saved*; then separate them, putting the old hive on a new stand. It will then be full of young bees mostly, and capped brood, and in about 24 hours they will accept a ripe cell, a virgin, or laying queen, as they will realize that they are hopelessly queenless. I would advise you to give them a laying queen, as I never like to keep my full colonies a day longer without a laying queen than I can help. In this way you have two strong colonies from one, as you have not lost a particle of brood nor checked the laying of your queen; and with me it almost wholly prevents swarming. This is the way we have made our increase for several years, and we like it much better than any other way we have ever tried. In doing so you keep all your colonies strong during the whole summer, and it is the strong colonies that count in giving us our surplus.

The mere fact of having a large number of colonies does not amount to much unless they are strong in bees and are *well* cared for at all times. This is a fact that many have sadly overlooked; and when the season comes to a close, giving them a small surplus, they feel disappointed and lay the fault on many things that have had but little to do with their failure.

In making your increase in the above way your new swarm on the old stand is in fine shape for a clamp of sections, as it has a large working force backed up by having its hive nearly full of brood, and but little honey, as the bees have been in the habit of storing their honey in the old hive that was on top, so they will soon go to work in the sections and have no notion of swarming. Then the old hive that has been set away can usually spare 15 or 20 lbs. of honey, which can be taken with the extractor, giving its new queen plenty of room to lay, and in a short time will be one of your best colonies, and also have no desire to swarm.

Now, if you have done your duty by your bees since taking them from their winter quarters, as I have recommended in the above, keeping them snug and warm, and

feeding them a little thin warm syrup nearly every day for the first 30 days after they commence to fly, you can have two good strong colonies in the place of one ready to commence work on your clover harvest, which here commences about June 15.

From an extensive experience along this line I find I can get nearly twice the amount of surplus by dividing as above stated over what I was able to acquire either by letting them go undivided or dividing in a way that caused the loss of a greater part of their brood. This losing of brood we must guard against at all times if we expect to secure a fine surplus. It costs both time and honey to produce it, and it is the principal factor in obtaining those strong colonies that give us tons of honey.

Far too many bee-keepers think that the value of their apiary consists in the number of colonies they keep. This is so only to a certain extent; for if you had 1000 colonies and they were all weak in bees, so they would give you no surplus, they would not be worth as much as one good strong colony that would give you 200 or 300 pounds of honey.

Several years ago one of my sons bought nine colonies of bees in common box hives, about the first of June. He brought them home and transferred them at once to movable-frame hives, and in about three weeks divided them, making 20 colonies of the 9 he bought, using some queen-cells I had on hand for his surplus colonies. He then attended to those 20 colonies so they were all strong at the commencement of our buckwheat harvest. I then lent him 20 hives of empty combs to put on top of his colonies to extract from. He took 2849 lbs. of extracted honey from those 9 colonies and their increase, and left them in good condition so every one came out the next spring in fine order.

Another son, the same season, took one colony, divided into three, and received 347 lbs. of extracted honey. They also came through the following winter in good condition. I speak of these cases simply to show that it is not necessary to keep hundreds of colonies in order to get a little honey. If you will only keep strong colonies and give them the best of care you will soon find both pleasure and profit in bee-keeping.

Now in regard to the criticism on this way of making our increase, which has been published in GLEANINGS. I find that nearly all who have made a failure of the method have taken colonies that had already made some preparations for swarming by having eggs or larvæ in their queen-cells, as did J. D. Ronan, of Chesterville, Miss., and also Don Mills, of Highland, Mich.

During the summer I received a few letters from parties who had made a failure of this method in about the same way. Some had taken colonies that had capped queen-cells in their hives at the time they put the queen in the under hive, and, of course, they swarmed in a day or two. I can not see that these failures are any proof of fault in



the method. When we work with our bees we must always use some discretion in such matters. If a colony is very strong in bees it certainly requires different management from one rather weak.

Since looking over the many comments on this way of making our increase I am somewhat pleased to find that so few have failed. Nearly all speak of it as a perfect success. The few that have failed were unfortunate in taking colonies that had already contracted the swarming fever. When they have done that it is almost impossible to prevent them.

Several parties have written me in about the same language as did George Shibber, of Randolph, N. Y., in the July 15th issue of GLEANINGS, page 777.

In conclusion I advise you to look over all the combs very carefully for eggs or larvæ in the queen cells of the colonies you wish to divide. If you find any it is sure proof of their intention of swarming; then you had better leave them only a few days together. The number you must decide yourself according to the age of the eggs or larvæ in their queen-cells. If you are careful about this part I am sure you will find it a fine way to make a large increase, and at the same time have your colonies in good condition for any harvest.

Delanson, N. Y., Jan. 15.

## HOW TO PROVIDE PROTECTION FOR SUPERS.

### The Value of Such Protection.

BY IRA BARBER.

I wish to add a little to the article of Mr. S. Simmins on the importance of protecting sections from cold, as given on page 1238. He did not tell how to do so in his article; and as I have spent my life in the production of comb honey I will state how I prepared my hives and sections to keep them as warm as possible through all changes of the weather that would take place throughout the honey season.

The hive should be made with a rim about one inch all around, about  $1\frac{1}{4}$  inches below the top, for a cap to rest on to go over the sections to keep the cool night air away and also retain all the heat from the bees.

I used a low cap eight inches high for the first set of sections at the beginning of the honey season; then as I tiered up higher, caps were used to keep all snug and warm. This can be done by using rims without top or bottom slipped on over the supers, but always keep the cap with a good tight top on top of the pile, no matter how many supers you have on the hive.

To retain the warmth I used to put the top cloth to the hives on top of the sections, and then on top of that a large newspaper, like a sixteen-page paper, one large enough to

cover the super all over with ten or twelve thickness of paper so that no heat from below could escape with the top board of the hive laid on top of all to keep them down snug and warm; and as you tier up, keep this packing on top of the pile with a good tight cap over all, and you will find your bees at home tending to business at all hours, night and day, if there is anything coming in, even if the nights are cool; and your bees will surprise you to see how they will climb up and finish sections as long as there is anything coming in.

Now, of course this plan does away with all upward ventilation, but which is entirely unnecessary, as bees will do all that at the bottom if your hive is raised up one inch all around except at the back end, as I always like to have some part of the hive rest square on the bottom-board.

A good roof should protect every hive from the sun, and I think there is none so good as one made gable fashion so there will be a current of air at all times passing between the roof and the cap of the hive to carry off the heat that the sun produces by shining right down upon them.

DeKalb Junction, N. Y., Jan. 17.

[When I prepared the announcement of Mr. Barber's death, as given in our February 15th issue, I was not aware that we had an unpublished manuscript from him. When it came it was promptly passed in to the printers at the time by my assistant, and you can imagine my surprise when I saw the communication in type. It is evident that the ink was scarcely dried when the trembling hand that penned the words assumed the condition of palsy which was soon followed by death.

About two years ago I made all arrangements to visit him to discuss that all-absorbing question, the temperature of bee-cellars, for he it known he was an advocate of high temperature. But conditions arose whereby it was impossible for me to get away—a fact which I regret the more now, for Mr. Barber was one of the brightest bee-keepers in the United States. This communication, coming from him at this time, may seem almost like a voice from the grave.

It is needless for me to say that I think our departed friend is entirely correct in all he says for localities having cool or chilly nights. I am of the opinion that comb-honey supers protected in almost any locality in the North would give better results than those not protected; or, to put it in another way, the ordinary  $\frac{3}{4}$  thickness of the standard comb-honey supers is hardly sufficient protection against the varying temperatures between a noonday sun and an atmosphere at night sometimes as low as 60 or 65 degrees. A protecting-case made of roofing paper or some light thin wood, I think will pay for itself, if not in one season at least in two. Let no one construe this as a bid for trade, for as a matter of fact one can buy his roofing-paper anywhere and make up his own cases.—ED.]



## THE PREVENTION OF SWARMING BY MEANS OF THE HIVE.

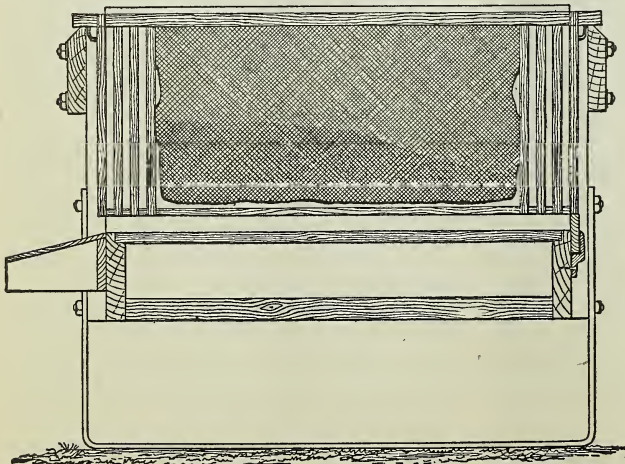
BY L. A. ASPINWALL.

[As promised in our Feb. 15th issue, page 204, we take pleasure in reproducing an article from the *Bee-keepers' Review*, by L. A. Aspinwall, describing his new non-swarming comb-honey hive. I think our readers will agree with me that nothing like it before was ever illustrated and described—at least not in America. While the Doolittle method of swarm control relates to a system of management, the one here shown is all in the construction of the hive. For the present, at least, Mr. Aspinwall says he is not prepared to furnish the hive nor to have any one else make them—that he wishes to experiment further before they are placed on the market. So it would be useless to write us or Mr. Aspinwall for hives or prices on the same.—ED.]

The ultimate control of the increase of colonies, culminating in the absolute prevention of swarming, is no less essential to successful bee culture than the control of increase in stock and poultry breeding. With no visible means to prevent increase among our domestic animals and poultry, perplexities would prevail, not unlike those experienced by bee-keepers during the swarming season; and, I might add, with the promiscuous mating of queens.

### THE YIELD DOUBLED BY NON-SWARMERS.

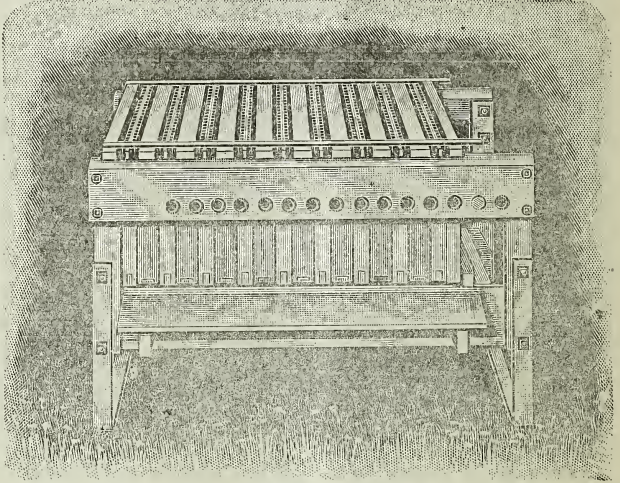
With our colonies under perfect control we may reasonably expect the yield of honey, in average seasons, to be at least double. Furthermore, with non-swarming hives the ability to secure all the honey possible from white clover gives an added value to the increased product.



SECTIONAL SIDE VIEW SHOWING SLATTED ENDS OF BROOD-FRAMES.

Having experimented 17 years with from 30 to 50 colonies of bees, involving great expense (both as to labor and money), in the employment of various methods, I must take issue with experimenters generally in this line, in that a successful method to prevent swarming must primarily be found in the *hive* rather than in the methods adopted. However, be the hive never so perfect, any neglect to use the methods requisite in its use will result very largely in failure.

In the prevention of swarming we must first prevent a development of the factors which induce it. These hinge mainly on a crowded condition of the colony. This con-



COVER AND SECTIONS REMOVED, SHOWING SLATTED DUMMIES IN PLACE.

dition results in the clogging of the brood-apartment with honey, and impeding the queen in her work of laying. The lack of storage room is a very important factor to be considered in this connection. Ventilation, and freedom of access to all parts of the hive, must in no way become impeded. The hive employed must embody requisites which, with proper management, will prevent a development of these factors.

### ESSENTIAL FEATURES OF A NON-SWARMING HIVE.

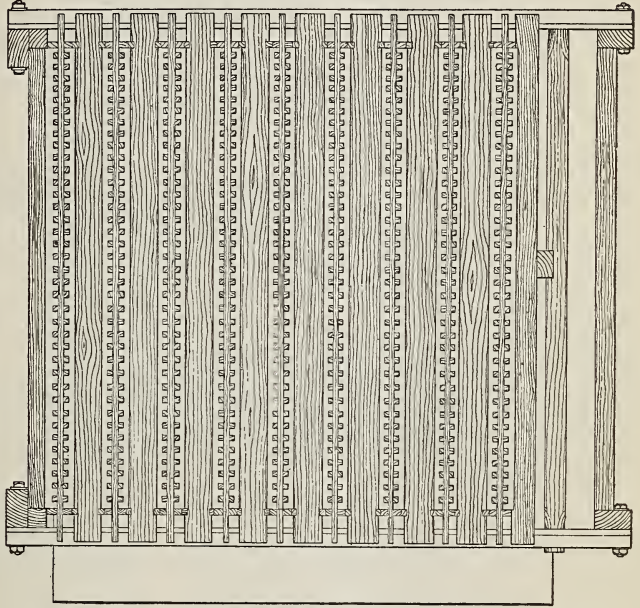
The essential feature embodied in the construction of my hive is an arrangement whereby the brood-combs may be separated, or spread, covering a greater area. It is an established fact that any amount of box or surplus room will but partially



overcome a crowded condition of the brood-nest.

The introduction of slatted frames, or dummies, previous to the swarming season, I have found to be the great essential in overcoming the crowded condition, thus retarding the swarming impulse. This plan has been the basic or foundation principle of all my experiments since 1893. The thickness, size, and number of these slatted frames have been wonderfully changed during the 12 years which have followed. I now arrange the comb-frames with slatted dummies between them, and on both sides and ends of the hive, which includes a new frame. While I have used slatted dummies at the sides for years, the new frame was first made with the view of rapid handling, and to prevent the killing of bees thereby. By reference to the accompanying illustration a slatted extension at each end of the frame will be seen. As already stated, through the tendency of bees to crowd the brood-nest, the slatted portion, although filled with them upon opening the hive and removing the frames, will almost instantly become free for closing, by their movement toward the combs. It is evident that a sufficient distance of slatted space between the combs and end-bars may be employed which would extend entirely beyond the reach of the strongest colony during the warmest weather. But there is a mean distance which is practically right. This I have made to conform to the number of sections, five of which are used in each holder contained in

the super. We will now see that, with additional length of the slatted dummies, which, together with the improved frames, tend to expand the colony, also affords free movement of the bees at either end, thus relieving the tendency to become crowded at the side where the bees enter in greatest numbers during a honey-flow. Furthermore, we have the combs, by reason of the slatted ends, most thoroughly protected from

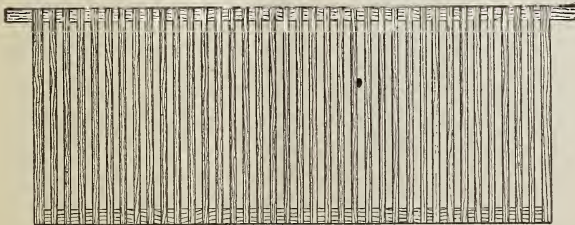


TOP VIEW OF BROOD NEST, SHOWING UPPER EDGES OF SLATTED DUMMIES.

the outside heat during very warm weather, which is another factor overcome in the prevention of swarming.

#### THE IMPORTANCE OF FREE COMMUNICATION WITH THE SUPER.

As with the development of mechanical contrivances, we find intricacies, evolving and forming a part of a non-swarming hive. Not only must the crowded condition be overcome, but much greater access afforded the bees for entering the supers. Who has not noticed sections, well filled with honey, having the lower edges of the wood gnawed by the bees? This, to the thoughtful mind, is an evidence of their requirements. It is equivalent to a demand for wider openings. By reference to the accompanying illustration, a plan or top view of the hive may be seen, showing the comb-frames and dummies alternating each other. Instead of the latter having wide top-



SLATTED DUMMY FOR USE IN BROOD NEST.



SLATTED DUMMY FOR USE IN SUPER.



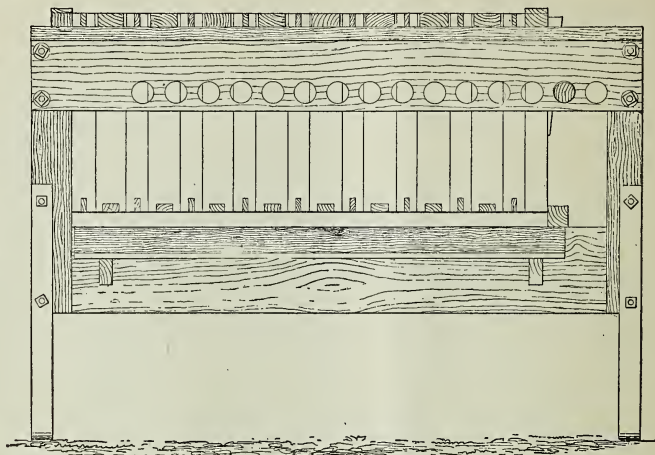
bars, additional bee space is given, which is correspondingly furnished by the super dummies or separators. This construction never fails to make the supers acceptable to our bees. With increased bee-space the supers become, as it were, more a part of the brood-chamber, inviting the storage of honey where it will be accessible to the cluster during winter. Bees reluctantly place their stores where it will fail to meet their requirements in cold weather.

But with this free passage to the supers, a corresponding evil presented itself which had to be overcome in order to gain complete success. I refer to the storage of pollen in the sections. The additional bee-space invited the storage of pollen as well as honey. I found, however, that, although the bees ventured above with pollen, the queens confined themselves exclusively to the brood-nest.

THE PART THAT DRONE-CELL FOUNDATION PLAYS IN THE PROBLEM.

The past season has been prolific in methods developing the non-swarmer. Knowing that bees seldom deposit pollen in drone comb I concluded to experiment with over 1000 sections containing drone-cell foundation. Although fearing the queen might occupy them, I was agreeably surprised to

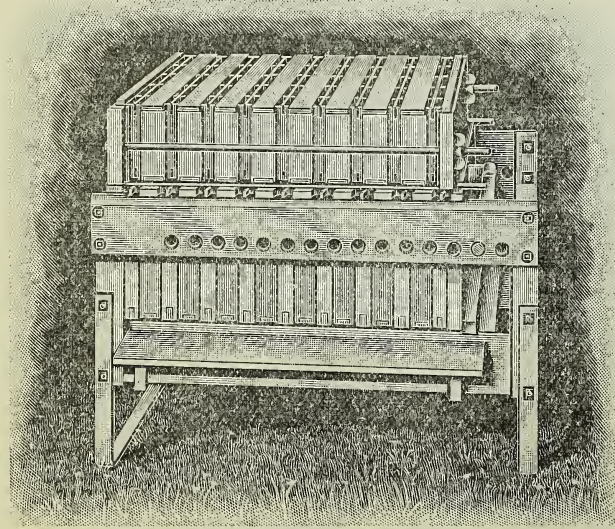
find that but four sections out of the whole number contained a few cells of brood, which I could readily account for. If, however, sections containing drone-cell foundation be placed on swarming hives, a crowded condition of the brood-chamber would be likely to force the queen above and occupy such cells in the laying of eggs. The slatted



FRONT ELEVATION, SHOWING SLATTED DUMMIES ALTERNATING ONE ANOTHER.

dummies of a non-swarmer prevent the crowded condition, and overcome all tendency to crowd the queen, which is a factor inducing the swarming impulse.

In the field of invention the unexpected invariably happens. It occurs in two ways. In the development of a principle many of the difficulties overcome are attended with a corresponding evil, which, upon being eliminated, gives us *more* than was anticipated. In respect to the latter, drone-cell foundation above the brood-nest entirely eliminates the storage of pollen; and with sections containing worker-cell foundation at each end of the section-holders (where no pollen is likely to be stored), a wonderful impetus is given to the storage of honey. By this arrangement we give the bees just what they build when left to instinct—both kinds of comb. We frequently find worker foundation in sections largely changed to drone size, thus displaying their instinctive demands relative to the construction of comb. Using three sections of drone foundation, and but two of worker size, which



HIVE WITH COVER REMOVED, SHOWING SUPER WITH SLATTED DUMMIES BETWEEN THE SECTIONS.



are placed at each *end* of the holder, thus making an outside row, induces the bees to complete them (the outside ones) much sooner than if all contained the same size of cells. This rapid filling of the outside sections, which is due to the excess of drone-size cells, affords another illustration in which the unexpected happened, giving more than was first expected. It may be well to state in this connection that the supering surface should be sufficient to contain from 35 to 40 sections in a super, or approximately about 25,000 cells, and 50,000 upon being tiered, which should be done when the first set of combs are about half drawn out, provided the honey-flow is good. In order to give employment to all the comb-builders, as well as those engaged in the storage of honey, without interference in their respective duties, from 50,000 to 75,000 cells are requisite. Let us also note that a *non-swarmer* hive is imperative. I mean by this, unless we keep pace with our colonies in the storage of honey by adding supers *when required*, the brood-apartment will become clogged, and the building of burr-combs ensue, thus developing a factor inducing the swarming impulse. The non-swarmer will be, most emphatically, the hive for progressive bee-keepers.

But some one may inquire as to the quality of honey and the thickness of comb when drone-cell foundation is used. I will simply say it transcends honey in worker comb for beauty, while the amount of wax per pound of honey is not increased in the least.

Another advantage contained in the non-swarmer is (if properly managed) the almost complete elimination of burr-combs, which are so annoying in the production of comb honey.

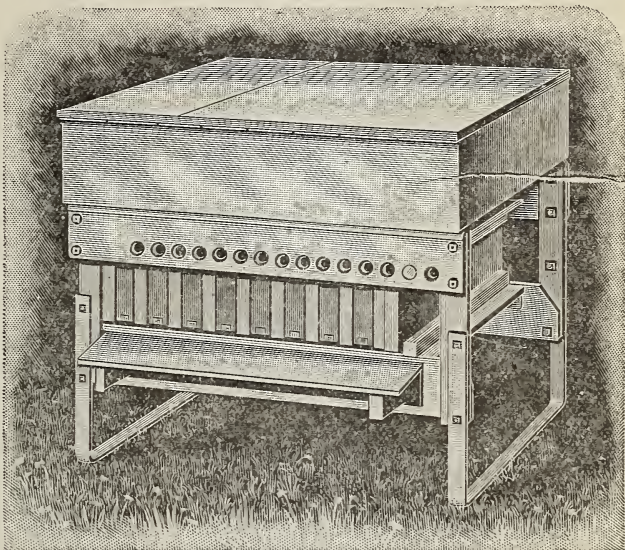
From 35 colonies, with an average production of 128 sections per colony, the burr-comb scrapings amounted to less than a quart, and most of these were due to experiments. Having conducted these experiments to prove the correctness of the principle involved in the hive, much less honey was stored than would otherwise have been.

Under the best-developed working plan, my bees would doubtless have averaged 150 sections per colony. The activity of a newly hived swarm does not compare with that of a strong non-swarmer colony when the honey-flow is good.

So rapid has been my progress in the development of a non-swarmer of late, I can safely say that more advance has been made in the last two years than in the 15 which preceded them. And what a comfort to

keep bees with all swarming eliminated! What possibilities in the maintenance of out-apiaries, also, to unite the keeping of bees with some other occupation!

In producing the non swarmer, five important and distinctive features essential in its construction have been developed. As already stated, the basic principle lies in the



HIVE COMPLETE, WITH COVER IN POSITION.

slatted dummies. Next came increased communication between the hive and supers. Following this, slatted ends were made in the comb-frames; and, in consequence, longer dummies were used. To prevent the storage of pollen in the sections, and at the same time retain wide passageways, led to the use of drone-cell foundation. In order to increase and equalize the storage of honey throughout the super, it was found advantageous to supplement the drone-cell foundation with worker size placed at the holder ends.

#### HOW I BEGAN BEE-KEEPING.

The Value of Books and Journals; a Financial Report of One Season's Success; How Colonies in the Cellar are Taken Care of.

BY A. K. FERRIS.

May 23, 1902, I bought my first colony of bees. Prior to that time I was in the floral and market-garden business; and finding it necessary to have bees assist in fertilizing my vines I began looking for a colony. It was not necessary to look far, for bee-keepers were not very enthusiastic in our location. Finding one somewhat discouraged I asked him what he wanted for a colony. He said, "The bees, hives, and all are for sale." The price was agreed on. I bought

his eight colonies of bees, and what he had in the bee-line, for \$80, he assuring me that there was 200 pounds of honey in the hives; but when they were brought home I found there was not ten pounds in the whole eight, and they were already carrying out some of their brood, which, by the way, was about two to four frames in two full ten-frame stories.

As I think of it now it makes me think of a man trying to keep warm in a tobacco-shed. But that man believed in plenty of room and the let-alone method.

I at once sent for Mr. A. C. Allen, of Portage, Wis., a dear friend of mine, who came to my assistance, giving me many pointers, and helping me get the bees into small enough space so they could control the heat. I supplied them with honey and reduced the number from eight to six. That year was a very poor one. Nearly all the bee-keepers fed, and that away into July. The result was, I had to feed a good share of the summer; but it paid, for I put 33 colonies in the cellar that fall. The next year I secured an average of nearly 100 pounds of honey besides getting a large number of combs built with which to work.

In my visit with Mr. Allen I made known my desire to rear queens. Mr. Allen, being a very prudent man, said all he could to discourage me; but when he saw I was persistent he advised me to obtain Doolittle's Scientific Queen rearing and other standard works; also to subscribe for some of the bee-journals, which I did, and I thank God for it; for my success was due largely to these books and journals. Fourteen months from the time I bought the bees I took an invoice of the apiary, and here is one of the original copies. It was these results that made me realize there was profit in apiculture.

#### FINANCIAL STATEMENT OF APIARY FROM MAY 23, 1902, TO JULY 23, 1903.

|                                                                                                                                    |          |
|------------------------------------------------------------------------------------------------------------------------------------|----------|
| May 23, 1902, bought 7 colonies of bees, 33 old hives, 10 lbs. foundation, three-frame extractor, and a few other things, for..... | \$ 80 00 |
| August 15, 1902, one colony bees.....                                                                                              | 3 00     |
| 1000 lbs. sugar at an average of \$4.15 per cwt.....                                                                               | 41 50    |
| 45 lbs. foundation at 45c, and 50 top stories at 45c.....                                                                          | 42 75    |
| 1 queen for \$8.00; lumber and molding, \$7.00.....                                                                                | 15 00    |
| 750 brood frames, \$10.50; queen-cages and smoker, \$2.00.....                                                                     | 12 50    |
|                                                                                                                                    | \$194 75 |
| Sold 3200 lbs. honey for.....                                                                                                      | 262 00   |
| Increased to 105 colonies of bees worth \$2.00 each.....                                                                           | 210 00   |
| Sold 23 lbs. wax at 30c, and 29 queens for \$19.00.....                                                                            | 25 90    |
| Increased 750 good straight brood-combs, valued at 15c each.....                                                                   | 112 50   |
| Total income.....                                                                                                                  | \$610 40 |
|                                                                                                                                    | 194 75   |
| Actual gain (personal labor not included).....                                                                                     | \$415 65 |
| Actual gain per swarm in 14 months was \$51.95.                                                                                    |          |

From this report you may wonder how success came so soon after taking up bee-keeping. Well, I studied the books and journals, taking care of the bees the best I knew how, and, as a result, I have never lost a full colony and only three nuclei in wintering. If bee keepers will see that their bees are heavy with good food, and not simply capped pollen, looking after the tempera-

ture and ventilation, bees will winter all right. My cellar has been flooded an inch or more two or three times, yet I have never had a dozen moldy combs. Provide each hive with a double thickness of burlap and set the cover so there will be a crack for moisture to escape. Remove the bottoms if this can be done; if not, remove the covers altogether, and just leave the burlap above the combs. I have wintered a number of two and three standard-frame nuclei, seldom losing one. It was through a desire to winter over some extra queens that I discovered the two-queen method of honey-production.

Early in my experience I learned that one of the first things to be considered is a nice lot of good straight all-worker combs. Many persons with good hives and bees are still clinging to combs with drone comb in them. These are worse than none if used in the brood-nest, for they occupy the space that might be used by good ones, for a good share of their profit is gone by producing drones.

Having learned that success in apiculture depends on the proper performance of many details, I was led to consider each manipulation recommended in the journals, and ask the reason why.

Here is where a great many fail: They do things simply because some one else does it that way. To succeed we must know why we do a thing, and then see that it is done at the right time and in the right way.

In further articles I will tell how to produce more honey from a given number of colonies, and also give a description of my two-queen system.

Madison, Wis., Jan. 29.

[It will be remembered that Mr. Ferris is the gentleman I introduced on the front cover page of our last issue as the three year-old bee-keeper whom I thought would be able to instruct some of the Gamaliels at whose feet he had been sitting. We shall see.—ED.]

#### THE SCIENCE OF SUCCESSFUL WINTERING OF BEES.

The Effects of Moisture, and How to Dispose of it.

BY ALLEN LATHAM.

The wintering of bees has ceased to be a bugbear, and many bee-keepers are now as confident of getting their colonies through the winter as a dairyman is of wintering his cows. This success is not due to a scientific knowledge of the requisites for good wintering of bees, but rather to the blind following of methods which usually give satisfactory results. It has seemed to me desirable to write an exposition on the subject, and to deal with it, so far as lies within my power, scientifically. Such an article seems necessary at this time when certain authorities are staunchly advocating a method which is unsafe—safe, possibly, in certain winters,



but sure to bring disaster when the right combination of conditions arises.

All observers are well united in decrying moisture, whether in cellar or in outdoor wintering; and most methods which can be expected to give good results are planned, in a greater or less degree, to minimize moisture. That there are apiarists who are too indifferent to the presence of humid air about the bees in winter is abundantly testified to in the numerous articles which appear on this subject. That one can not be too zealous in his efforts to reduce the evil effects of moisture is the stand I take; and I hope, in what I have yet to say, to show that I am on solid ground.

Why is there moisture present about bees? and why is this moisture harmful, if persistent? are two questions which first engage our attention.

The winter food of bees is a mixture of carbohydrates—substances made up of carbon, hydrogen, and oxygen. In its decomposition and oxidation within the body of the bee there result two products—carbon dioxide and pure water. These products normally will both leave the body of the bee as gases—the dioxide diffusing into the air, the water vapor entering the air just as water leaves wet clothes and lets them become dry. It is thus evident that the air in and about a cluster of bees in winter is bound to become humid; and, if the circulation of the air is sluggish, the moisture will increase to the extent that combs, hive-walls, and, in the case of cellars, all surrounding objects will receive water by condensation. Thus, briefly, is the first question asked above answered.

The second question can not be so briefly answered, for we must first consider how the bee eliminates the water which results from the digestion of honey. The normal exit for this water is the spiracles (or breathing-pores) of the respiratory system of the bee. These spiracles open into bronchial tubes which ramify through the body of the bee, and through the delicate walls of these tiny branches the blood of the bee discharges surplus water and carbon dioxide exactly as the blood in our own bodies throws these substances into our lungs to be breathed out at the nose.

It would be indeed difficult to enter minutely into the phenomenon described above, and to state the laws which govern osmosis, diffusion, and kindred molecular activities of liquids and gases. Let it suffice to say that there exists a balance or level with these forces; and just as water will come to a level in different intercommunicating vessels, so will fluids come to a level on the two sides of an osmotic membrane. When this level is reached, the interchange, or the flow in either direction, will cease.

From the statements in the preceding paragraph we begin to see the harmfulness of moist air about the bees. If the air in the hive is humid the escape of moisture from the spiracles becomes lessened, and may cease altogether. Failing elimination through the

spiracles the water must be taken care of by the intestines of the bee, reaching them by way of the urinary organs. Such work put upon the urinary organs and the intestines is of small moment if bees can take frequent flights, and thus relieve the resulting discomfort.

Let it be understood that, under favorable conditions, the amount of waste matter in honey or other sugars used as food is insignificant. If all the water escapes with the carbon dioxide through the spiracles the residual fecal matter is astonishingly small in amount, and bees can let it accumulate for months without serious discomfort. If, however, a small drop of water is forced into the intestine of the bee, after a few weeks of confinement, the result is immediate uneasiness and restlessness. The desire to leave the hive causes much moving about, increased consumption of stores, and aggravated discomfort.

Thus is the second of the questions, Why is this moisture harmful? answered. In a few words the answer is, because it causes congested intestines and desire for flight, and results in an evil which becomes aggravated in increasing ratio.

A third question naturally arises at this point: How can we dispose of this moisture emanating from the bee's body so that it can not cause harm?

The methods in general can be brought under two heads: Either we can dispose of the water by the use of absorbent materials, or we can have it carried off by ventilation. In the case of outdoor wintering the absorbent in the shape of finely divided material above the brood-nest, with a slow upward movement of air, appears to be rather popular. In spite of its popularity, it is unsafe because the upward ventilation is regulated with such difficulty. If the movement of air through the porous cushion becomes stopped in any way, the upper strata of air in the hive become excessively humid, and death of the colony often results (that form of death with plenty of stores in the combs, the mysterious death which is made the subject of so many questions in the questions-and-answers department of our bee-periodicals). To help out the evil, there goes with this method of wintering bees the small entrance. That small-entrance fetish has too many devotees, and I fear that only dire calamity some one of these years will shatter that idol.

Absorbents are, so far as I know, never used in the cellar. That such could be used to advantage, such, for instance, as some deliquescent substance like calcium chloride, appears to me quite probable. In the course of another winter I hope to experiment along that line, but as yet I can give no definite statement.

Ventilation is the common resource of those apiarists who winter their bees in the cellar or repository; and let me say here that it is, for outdoor wintering, the *ne plus ultra*. The large entrance, not less than the equivalent of five square inches (I use

the equivalent of fifteen square inches in my own hives), when once adopted by a bee-keeper is not likely ever to be abandoned. I would not lead any one to think that a large entrance will pull bees through the winter when other essentials are lacking, for one has to meet and cope with many difficulties in this matter of wintering bees; but it will serve to take away the moisture from inside the hive sufficiently well to keep the bees in good health and quiet. It should be said that a large entrance should never be accompanied by upward ventilation, although absorbent cushions may be used. There must be tight covers so that no serious loss of heat takes place; but there should be *ample circulation of the cold air under the frames*. If the air under the frames is frequently changed, diffusion will keep the air above dry.

Cellar winterers have long since found that colonies do best if the entrance be extremely large, or the hive-bottom left off entirely. It cost many, many colonies of bees in late winter, and many more by "spring dwindling" after the hives were set out, before bee-keepers made this most important discovery: is it to cost an equal number of colonies before out-of-door winterers learn the same lesson? No, for God has given us the winds out of doors, and Nature can help the bees outside with the brisk winter winds, while the stagnant air of the cellar is out of reach of Boreas.

Allow me to return to the carbon dioxide and the water vapor thrown off by the bees. The former is a gas almost twice as heavy as air, and naturally sinks toward the bottom of the hive, and small indeed must be the entrance that will not take care of it. Far different is water vapor, which is only two-thirds as heavy as air, and hence tends to find its way to the upper portions of the interior of the hive. If the entrance is small this vapor must condense, or escape slowly upward or diffuse *slowly* downward. If the entrance is amply large to admit of a rapid exchange of air below, the diffusion of the vapor will be comparatively rapid.

The great advantage of a dry hive over a wet one in winter is especially noticeable when a day of moderate temperature occurs. The dry hive warms up in a short time, while the wet one may not get warm at all. Bees can take flight from a dry hive on days when it would scarcely be possible for bees to fly from wet hives. To understand this, one must consider the high specific heat of water. It will then be seen that a warm winter day will be nearly passed before the wet hive is sufficiently warmed for bees to be roused to flight, though the bees from dry hives are flying before noon. Again, it will require an unusual winter day to warm the wet hive so that bees can readily shift to unconsumed stores, whereas in the dry hive bees readily shift on almost any sunny day.

After twenty-one years of numerous and varied experiments in the wintering of bees, accompanied by a most careful observation of effects and search after the causes of

these effects, I have arrived at the results which I have outlined in this article. I would esteem it a favor for any one to point out an error in my deductions. I would urge every experimenter to test by actual trial the direful effects of moisture upon bee health. Above all, I would urge upon the devotees of the small winter entrance to be less prodigal of their advice to use such; for they are encouraging the adoption of a method of wintering bees which may some winter wipe out whole apiaries—a method which is usually safe, but sometimes full of calamity—a method which rarely gives best results.

Norwich, Conn.

[I believe the foregoing to be orthodox from the standpoint of practical bee-keeping in the main; but if there is danger that there are some who will go too far with small entrances for outdoor wintering, there is equal danger that others may make their entrances *too* wide. For over thirty winters we have wintered from 250 to 500 colonies and nuclei outdoors. Over and over again we have proved to our own satisfaction that an entrance too large is quite liable to result in the death of a colony, even before the approach of spring. Some five or six winters ago we tested the matter over again, and found that in nearly every case where a colony had an entrance  $\frac{1}{2}$  deep by the width of the hive they either died outright or were so weak as to be practically good for nothing. A strong colony, according to our experience, will give best results with an entrance  $\frac{3}{4}$ , by 8 inches wide. A correspondingly weaker colony must have an entrance correspondingly reduced in size. We have some weak colonies with entrances only 2 inches wide by  $\frac{3}{4}$  deep that winter nicely; yet this entrance is sufficiently large to carry off the excess of moisture. The only danger of a small entrance is that dead bees may clog it in late spring. In that case the colony will die because of the excess of moisture, the excess being absorbed in the bowels, and causing dysentery exactly as you describe. In saying this I wish to subscribe fully to your scientific deductions on the point. We make it a practice to examine the entrances occasionally; and if any are clogged, to rake them out.—ED.]

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#### AVERAGE CONSUMPTION OF HONEY OF A FAMILY.

E. P. Coltrin says, p. 96, his family of five bid fair to consume 300 lbs. of honey, and asks if this is a fair average. This is 60 lbs. each, or 5 gallons. I do not know the average, but doubt its reaching 10 lbs. in the United States. For the past 20 years my family of two have used an average of two five-gallon cans, or 120 lbs.; and when we had cream of our own we used 180 lbs. I am the only one in my family who eats honey. A small portion was used in canning fruit and making jam. I never use sugar for any purpose, as I prefer honey.

Santa Barbara, Cal.

DELOS WOOD.



## SOME EXPERIENCE WITH A CHINESE BEE-KEEPER.

### Cutting Bees out of a Side of a Building.

BY LOUIS F. WAHL.

On the 6th of last May I was in Delta, Col. My eyes were always open and alert, especially to every thing pertaining to bee-keeping, and it wasn't long before I noticed flying bees at the side of a steam laundry. The very first discovery led me to inquire of the laundrymen as to the ownership of the building. They told me that Leung Chung (or Lon, as everybody called him), the Chinaman two doors from there, bought them for \$2.50, and was trying to get somebody to help him take them out. I then went to Lon's place of business. He was there with another man fixing up a hive ready to put them in. I told him my mission, and he looked with smiles, full of encouragement, and said, "I fix a big hive a big swam. Seven year ago they wint in I had a hose, and tried to stop 'em goin in, an' the more wet I make, the more they pile in. The honey been O. K. every year. I pay for them. I make a big hive to hold all. I wanta go China. I want exp'rence."

The description of his hive was 11 Hoffman frames with a space for the  $4\frac{1}{2} \times 4\frac{1}{2}$  beeway sections on the bottom. I tried to get him to cut the hive down to natural depth. He insisted with a "los, los o' bees; I want exp'rence."

Well, I encouraged him by saying it would do no harm in that country, where bees need no winter protection, and it could be cut off at any time.

Right here permit me to say I have seen hives with

cracks out of which bees were coming at all corners, and on top, with eight Langstroth frames of solid brood, the first of May. It was about the 1st of August before I could spare time to help him take them out. The day was set, when he prepared a good platform scaffold about six feet from the ground, and then with a short ladder we managed to reach the top board and begin sawing, he one side and I the other, taking off each in order till they were all off. A crowd gathered on the sidewalk, a safe distance away, and asked all sorts of questions, some trying to jolly Lon, who was witty enough to ignore their foolish jokes. After the boards were off and the picture taken we proceeded to transfer. We got five full Hoffman frames of brood and 50 lbs. of chunk alfalfa honey. We were lucky in finding the queen; and by smoking the bees after all the honey was scraped out of the building they settled down in the hive contented, which stood on the platform.

Just a few days before I left Colorado to



CUTTING BEES OUT OF A SIDE OF A BUILDING.



go home, Lon requested me to go up the Gunnison Valley about seven miles to his ranch of 80 acres. I accepted his invitation. Lon is a good horseman, and owns some good trotting stock. There are about ten acres of young apple orchard just beginning to bear fruit. At present some of the land is without water; but in three years after the Gunnison tunnel which the government is building is completed the water supply will be unlimited for that whole section of country. Lon also owns 30 fine colonies of Italian bees, all in good ten-frame standard hives. He let his ranch and bees out on shares; and to show you he was not to be fooled any more by American people he was shrewd enough, after the supers were on, to make marks on the backs of the hives, extending from the supers down on the hive-bodies, so he could tell if the supers had been taken off or not, or comb taken out of the lower story. We looked through some of the hives. I showed him the queen and some points about finding her, and different ways of manipulating bees, hives, etc.

On our way home he told me of the lot of wild flowers in China. He said, "I don't know if hon' in them or not. I wan' to go home fo' yea' an' see; them come back an' sell my prop'ty, and go home to China an' keep bee." I asked him why Chinamen always went into the laundry business when they landed in this country, and if that was all the men did in China. He said, "No, but I tell you I come here, you see I hire for cook \$50.00 a month. I work one month all right, so next month boss say, I can't pay this month; you work a month more, then I pay you both, or else you go. See? Well, I work another month, and no mon'; then I find out he got none. How I get a judgment? No good; \$100 no good. What I live on? I then start wash. First week I make 7 or 8 dol; then if some don't pay wash, I don't lose all."

Chili Center, N. Y.

#### A CHEAP HOME-MADE STRAINER.

How to Fasten the Cloth to the Can.

BY G. A. DEADMAN.

I suppose the majority of the readers of GLEANINGS keep a cow; and not only so, but the most of you use a metal strainer or a strainer with pail for straining the milk. Many of you may know that cloth is much better for this purpose than any metal can possibly be; but because you did not know how to keep it in place easily you have continued in the old way. For a number of years I have used a rubber band large enough to go over the top of the can and around the cloth strainer until, happily, I thought of the clothes-pins. If there is anything better I should like to hear of it. For the strainer I find a medium grade of factory cotton very good. If too light it does not keep in place so well, and may not do good

work. If too heavy it will not strain fast enough. About the best at 5 cts. per yard will do nicely. A piece a yard square will make four.

I do not know that I would have mentioned this in GLEANINGS if it were not for the fact that this plan is very handy at times when having a little balance of honey that requires to be strained or restrained; but for honey, unless it is hot, thin cheese-cloth is better. The good wife will find it very handy when making jelly, maple syrup, and such like. I have never tried the clothes-pins when straining honey in a large way, generally using a strap with a buckle. Those



HOW TO HOLD THE CLOTH WHEN STRAINING HONEY.

of you who have tried the thin cheese-cloth and a strap to hold it in place are no doubt well satisfied, although the Alexander pail, as recently illustrated in GLEANINGS, may at times be better, especially when doing it on a large scale. I like to know that no fly nor any thing else can get into my honey, and a strainer-cloth strapped over the honey-can is good for this, if nothing else. When it can be strained so easily there is really no excuse for not doing it. There may be a little of the last when drawn off that will require to be restrained; but this is a small matter. I do not like bits of wax scales or cappings to rise to the top of the honey



when put into pails, and there is no excuse for it. I have bought honey more than once, however, that had this objectionable feature.

Brussels, Ont.

[It is these simple cheap devices that help to lighten the burden, and at the same time increase our profits in the bee business. So simple a thing as a clothespin, applied at the right time, is often overlooked. I have often seen my mother strain out starch precisely in this way; and the illustration herewith will be a reminder to bee-keepers how they can strain their honey. — ED.]

to yield a crop of honey. The average has been about 40 or 50 lbs. per colony, although as much as 150 lbs. of extracted honey has been obtained per hive. The honey is mostly light amber. Several varieties of the sages are to be found in the hills, and afford good pasturage for bees. Other honey-secreting flowers abound.

Mr. K. finds that it does not pay to use the solar extractor for any thing but cappings and new combs. For old combs he uses a German wax-press. Before he began the use of the latter he believes he must have thrown away over \$100 worth of old combs.



THE HOME OF PATRICK KEATING NEAR HACIENDA, CAL. THE APIARY IS A FEW FEET UP THE HILL, PARTIALLY SHOWN AT THE LEFT.

#### A VISIT TO A CALIFORNIA APIARY.

The Use of Beeswax among Horticulturists.

BY W. A. PRYAL.

I am sending you several pictures showing the apiary, home, and a solar wax-extractor belonging to Mr. Pat Keating. His property is known as the Pat Keating farm. He has kept bees at New Almaden some 15 years, but before coming to California he was in the business at his old home in County Tipperary, Ireland, where he used a hive much like those he now uses, except that they were more like the double-walled hives used in the Eastern States.

This California apiary has contained as many as 200 colonies, and has never failed

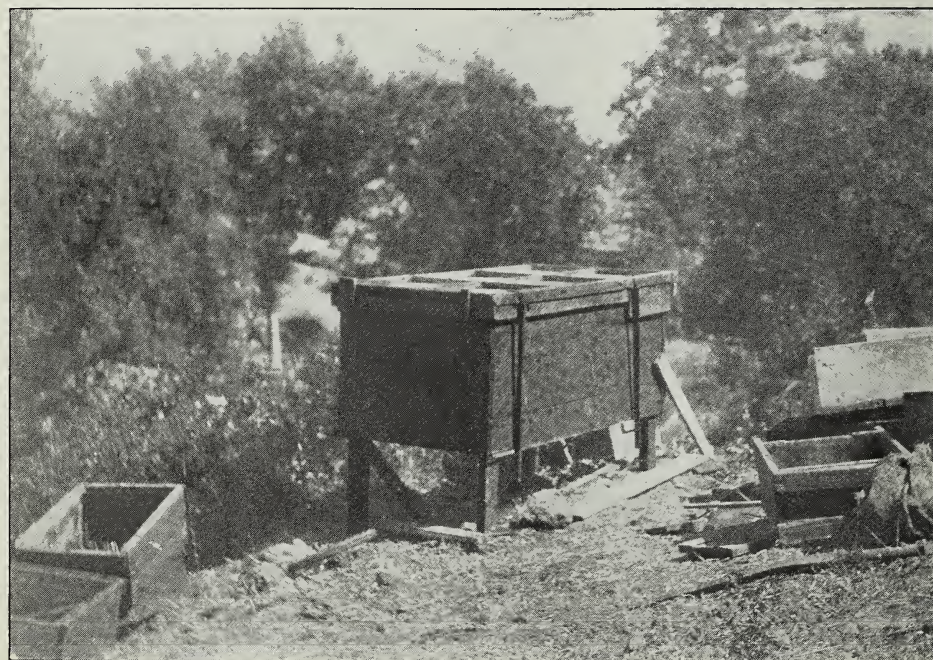
The wax-extractor pictured is 4 ft. long, 2 ft. 4 inches wide, and 2 ft. deep. A sheet of Russia iron, three-quarters the size of the inside of the box, and raised to about six inches of the top, supports the combs to be melted. Six or eight combs can be inserted at once, and, if new, will melt down in a very short time. Mr. Keating sells all his old and black wax to a man in Santa Clara Valley, who makes a business of manufacturing grafting-wax. As stated before by me, the valley just named is one of the largest and best fruit-growing localities in the world, consequently much beeswax is used by its horticulturists. The wax-maker referred to seems to prefer the old wax for his purpose.

San Francisco, Cal.





PARTIAL VIEW OF THE APIARY OF PATRICK KEATING, HACIENDA, CAL.



PATRICK KEATING'S SOLAR WAX-EXTRACTOR.



# THE WIRE-CLOTH SEPARATOR CON-DEMND.

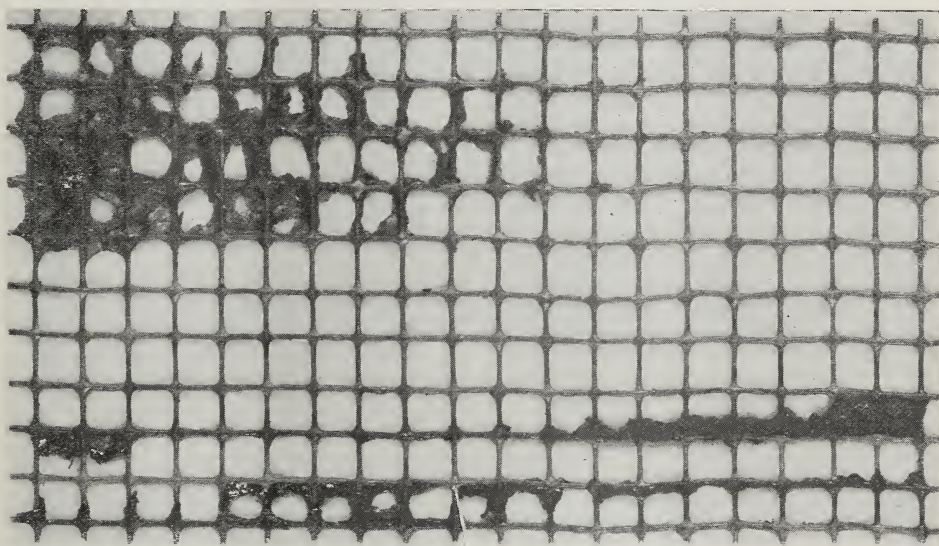
Brace Combs and Propolis; Tinker Zinc Better than Wire Cloth.

BY C. H. DIBBERN.

I have read and reread your editorial on pages 278, '9, with a good deal of interest and *astonishment*. Now, I have a good deal of respect for the opinions and experience of Mr. House and Mr. Salisbury, as well as your own; but your conclusions are so diametrically opposed to all my experience that I feel it a duty to bee-keepers to sound a warning note before a lot of money is wasted. I gave these separators a very thorough trial some twenty years ago. I can not now bring myself to believe that my conclusions were not good. I will now simply give my

ficult to clean, and the brace-comb nuisance seemed to increase the longer I used them. Then I found that some seasons the bees would make a thin comb on the separators, thinking, probably, it was some new kind of foundation, notwithstanding full sheets were used in the sections.

I now became thoroughly disgusted with them, though I continued using some of them for a number of years. I think it was about 1892 that Mr. Betsinger took out a patent on wire-cloth separators, and cautioned bee-keepers against using them before paying him a royalty. I well remember laughing to myself while reading it, feeling that he was welcome to all he could make out of it. During the last ten years all my wire-cloth separators have been piled away on the shelves in the shop with a lot of other abandoned things.



WIRE-CLOTH SEPARATOR SHOWING HOW THE BEES BUILT COMB ON IT.

experience, and bee-keepers can form their own conclusions.

It was in 1886 that my attention was drawn to some wire cloth we had in the store, used principally for sand screen. I thought it would make a good separator. That year I tried some 200 of the separators; and to say that I was delighted with them expresses it mildly. The next season I cut up several rolls of the wire cloth, making about 1000 more separators. That season my enthusiasm began to wane, as I began to notice a good deal of brace-comb; and then, too, the bees would daub lots of propolis where the separators pass between the section. Still I was not satisfied that these objections could not be overcome, and continued to use all of them the next year; in fact, I used more or less of them for about ten years. I soon found they were very dif-

Now, as there is a possibility that the separators I used were made of a different kind of wire cloth from that you now have under consideration, I will inclose a piece of a separator I used. This was used more than ten years ago, and still shows the fish-bone of a piece of comb the bees attached to it. Since reading your article I have been thinking of various ways of overcoming my objections. The only way to clean effectually the separators is to boil them; but that soon seems to cause them to rust. Perhaps this might be obviated by drying them immediately and dipping them in linseed oil. That, too, might overcome the trouble of excessive propolizing and brace-combs. I tried to have the mill making the wire cloth pass the cloth through heavy rolls, so as to make it thinner, and not leave so many rough places for the bees to daub up, and make them easier to scrape,

but they had no machinery suitable for that kind of work.

For the past year I have experimented with the Tinker excluder zinc for separators, and so far I think it the best separator made. The fences, however, are hard to beat; and, with the plain sections, they seem to be just the thing; but for the beeway sections, is there any thing better than the old tin separator?

Milan, Ill.

[The sample of wire cloth smeared up with comb or wax we had photographed and engraved exactly as it was. The mesh of wire cloth is the same as that used so successfully in York State by Salisbury, House, Greiner, and others.

I well remember when this wire-cloth separator was first brought out, for I stepped into GLEANINGS editorial chair about that time. There were then reports that the bees would build films of wax on the wire, and otherwise smear them with propolis. It is probable that these unfavorable reports at the *very start* is what caused them to be dropped prematurely; but certain it is that several of the York State bee-keepers in late years have made a great success with them.

While they admit that bees will smear wax on them at times, they claim this is true only of certain colonies and in certain seasons, and that, even where the separators are daubed, they can be easily cleaned by immersing them in hot water. You refer to this, but urge as an objection that the separators so treated will rust. I can hardly see why this should be so; for in the illustration here shown it appears that the wire cloth was galvanized, for the zinc spelter can be plainly seen that solders the wires together. A galvanized metal is not liable to rust if it is immersed in hot water only once a year for cleaning; and usually any thing of this nature taken out of boiling water will dry almost immediately because of the acquired heat. If the hot water did not clean them perfectly I would use a little common lye, as Emma Wilson recommends; and if there were danger of rust, throw the separators, immediately after cleaning, into a box of sawdust, and then give them a good shaking. They will come out dry, I will guarantee. This method of quick drying small metal articles that have been immersed in water or other liquids is well known to manufacturers.

But, friend D., I really believe you are offering testimony that is favorable rather than otherwise. You say that you tried 200 of them the first season, "and to say that I was delighted with them expresses it mildly." You had clean separators to start on. Now if, the *second* season, you had immersed them in a solution of hot lye and water, and dried them in sawdust, I infer that you would have been "delighted" with them the next season; for your chief and only objection was the building of wax on the mesh of the cloth; and because they were smeared up you abandoned them. If there is any one among our contributors who can make

a balky thing work, I believe it is yourself. I would respectfully suggest that you gather together your old wire-cloth separators and clean them with a lye solution as recommended. If there is one colony inclined to build on to the cloth, requen it.

We have never tried these wire-cloth separators; but I was so favorably impressed with what I saw in York State that I am forced to believe that what several good bee-keepers *can* do, a lot more, including yourself, can likewise do. Now that this subject is up for discussion, we should be glad to hear from those who have tested these wire-cloth separators in years gone by, no matter what their testimony may be.

I might add further that some of the York State bee-keepers use these separators with plain sections, in order that the bees may have a free passageway across the surface of the sections and through the wire cloth from one section to another.

Twenty years ago you probably were using beeway sections. These, you can readily see, would cause a much larger amount of propolis, because the edges of the sections would come in contact with the wire cloth. The separators that have been used in York State do not touch the plain sections at any point except at the extreme ends, the sections being locked closely together in straight lines, with the separator exactly half way between them, also on a straight line.

So far the Root Co. has not been able to solve the problem of making these separators cheaply; but many of the benefits of them might be secured by using the four-beeway section, and then going to the hardware store and purchasing a roll of wire cloth. This can be taken to a tinshop and cut up into desired sizes. Plain sections require having the separators bound with folded tin, top and bottom, to hold the separator straight.

This reminds me that N. N. Betsinger was a user of plain sections over twenty years ago; and when I met him in a convention some six or eight years ago he called my attention to the fact that we were resurrecting an old idea of his.

I think you are mistaken as to the date of the Betsinger patent on wire-cloth separators. I was told it ran out about a year ago. That would make the date of the patent about 1888. How long prior to this he may have been using them I do not know. Perhaps Mr. S. D. House, a neighbor of his, could tell us. Indeed, we should be pleased to have him give us his experience, for Mr. House is the man who obtained the idea of Mr. Betsinger, and who has recently brought the merits of the device before the bee-keepers of his State.—ED.]

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On page 492, 1905, I read "Swarming was induced by the flora from cleome." What kind of cleome have you that yields nectar in June? Here we have five kinds, and count on a bloom about the 15th of July. Occasionally, but rarely, about one out of 4,444,444, will bloom in June. It lasts until frost. JAMES H. KING, Carlton, Col.





#### AN UP-TO-DATE YOUNG BEE-KEEPER.

I am a boy thirteen years of age. I have been keeping bees for three years. A man who lived about a mile from our house first got me interested in my little pets. He moved to Missouri last year, and left me without anybody to advise me; but I find all the advice I need in my bee-books and GLEANINGS, which I could not do without. Last year I secured 75 sections of honey from one colony, and also three swarms. I now have three colonies of Italian-Carniolans and one colony of hybrids. They are all in Dovetailed hives. I am wintering them outdoors. I always wintered them in the cellar until this time. I have six empty hives, and all my other supplies all ready for next season. We had been having a very mild winter until about a week ago, when it turned pretty cold.

Last summer I made me an observatory hive in which I watched the bees rear a queen. I think the Italian-Carniolans are great bees for comb honey, but they are awful cross; but I don't mind a few stings.

J. R. McCORKLE.

Wingate, Ind., Feb. 11.

#### ADDRESSING FARMERS' INSTITUTES ON THE SUBJECT OF BEES.

I send you a copy of a paper containing a synopsis of a paper read before a farmers' institute here this week. I dealt principally with pollination of plants and the part played by bees, etc. Incidentally I touched on the spraying question, and I believe some good was done. There was quite an interest taken in the matter, and I believe this is a good field to work, and I should be glad to see it covered next winter.

Why can we not systematically (and without much expense) arrange to have some practical bee-keeper present a few of these ideas before each county and township institute in the States. The subject of my paper was "The Bee as the Farmer's Friend." I showed how certain crops, as clovers, etc., and fruits, depend on the co-operation of the bee. I gave details in regard to pollination and other points that were new to most of the audience, and showed why spraying during blooming time is injurious. Of course, these things are ancient history to the advanced bee-keepers, but were well received, and many inquiries were made afterward, especially in regard to the time and manner of spraying. Why not organize some plan to present some of these things next winter?

Another point I had nearly forgotten.

The question was asked, "Is it policy and profitable for each farmer to keep bees to fertilize his crops?" I answered, "No, it is not good policy, nor is it profitable for each farmer to keep bees unless he loves their company. It is policy and profitable to encourage the specialist in your immediate vicinity by buying his honey." As a consequence of this free advertising I had 20 or more neighbors ask for honey. I could have sold 500 lbs. if I could have supplied it; but I sold out long ago. I believe there is fertile ground in this thing, good enough to pay to cultivate it.

Redkey, Ind.

GEO. W. WILLIAMS.

[You are surely on the right track. A bee-keeper who is progressive enough to give an interesting talk at a farmers' institute ought to make quite a name for himself in his locality, and it pays to have such a name.

Almost any bee-keeper with a few years' experience ought to be able to give such a talk; for, as you say, the facts given might be ancient history to a bee-keeper, though entirely new to those present.—ED.]

#### BEES IN CELLAR RESTLESS.

I should like to ask a question in regard to wintering bees in a cellar. My cellar is dry, with a window in one side, and a pipe running into the chimney to take off the foul air. I am keeping it at about 45 degrees. The bees are very restless this winter. I have a canvas screen hanging in front of them to keep the light from them. Is that right? If not, please advise.

JAMES B. GOFF.

Dominion City, Man., Feb. 16.

[I think your trouble is in not having your cellar dark enough. Your canvas screen, unless black in color, would let in altogether too much light to the bees. Your better way is to make the cellar perfectly dark. During the spring, if the bees are still uneasy, carry them out for a flight, and, if not too late, leave them out. If cold weather continues, or is liable to continue, put them back in. Bees that get uneasy will often quiet down very readily if they can be given an outdoor flight.—ED.]

#### LARGE ENTRANCES PROPOLIZED NEARLY SHUT IN WINTER.

There has been quite a little comment lately on bee-hive entrances. Please accept my mite. I have for several years contracted to  $1\frac{1}{2}$  to  $2\frac{1}{2}$  inches about Nov. 1, and all supers off L. hives; but this fall I have them  $2\frac{1}{2}$  to  $4\frac{1}{2}$ , and to-day I notice one of my best colonies with a 4-inch entrance  $\frac{3}{4}$  deep, and facing the southeast, has propolized the entrance, leaving three peep-holes that you could not put a hazelnut in. If the entrance were one inch deep, two bees can just pass easily in each. What antics bees do play when left to their own will!

San Diego, Cal.

E. F. PORTER.

## A SWARM ENTERING A HIVE.

In your comment on page 155 you say that I did not send a picture of the bees running into the hive. I am now sending one which is so good I want you to see it.

Ayer, Mass.

F. P. BRIGGS.

## HIVE-CARRIERS.

In reading your article in the last issue about carrying bees from the cellar I thought of how your men had to stoop down to pick up and put down their load of bees; and if it would be acceptable I should like to give you a description of our method of carrying bees in and out of the cellar. The side pieces of our carrier are made of inch pine, 3 inches wide and 7 feet long, and are rounded down to 2 inches in width at the ends to fit the hands better. They are made into a light frame by nailing cleats 17 inches long between them, and 20 inches from each end we have a pair of legs  $9\frac{1}{2}$  inches long. By using this carrier with the short legs you do not have to bend over so much when you pick up and put down your load at each end of the journey to and from the yard. We have a two-inch strip nailed across the top of the side-pieces, 17 inches from one end to prevent the hives from sliding when we go down the cellar steps, which are at an angle of about 30 degrees, and the short legs do not interfere in any way. By making the side pieces of  $1\frac{1}{2}$ -inch lumber you would get a better handle, and your carrier would not weigh over 12 lbs., and would be an improvement over the two loose pieces you mention as now using.

W. W. CARY.

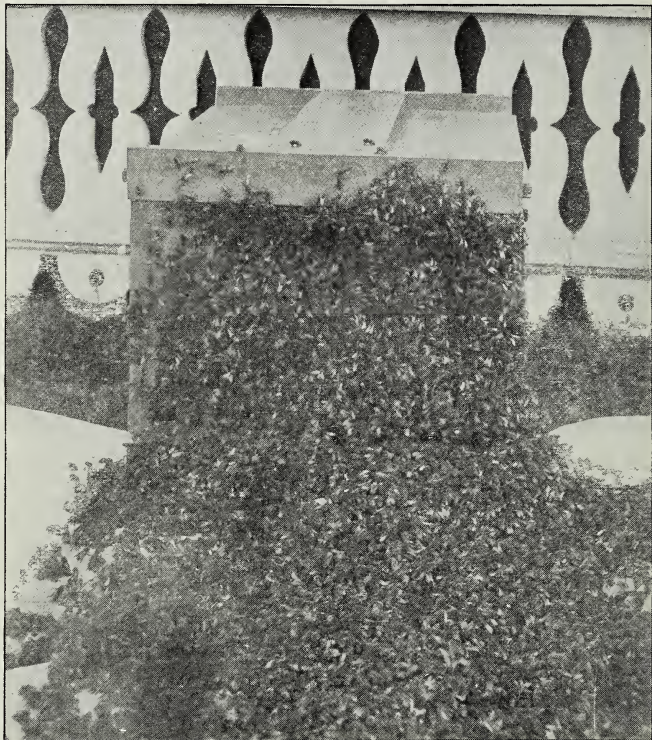
Lyonsville, Mass.

## OUR HIVE-CARRIER; THE ADVANTAGE OF THE LEGS.

Mr. Editor:—Your plan on page 280, of carrying bees on a stretcher, or bee-carrier, as we always called it, is all right, but I believe I can suggest a point or two that will make the work of handling the same quite a little easier. I have used such a rig to carry into and out of the cellar for many years, and know from experience that it has saved us many backaches. I would not be without one, if I had a cellar to winter in.

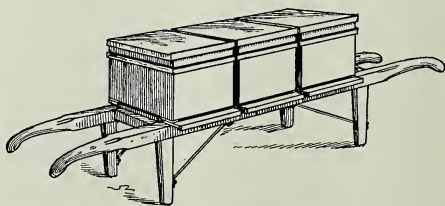
If you would supply your stretcher with legs, like the one in the accompanying cut, you would find it a great improvement. In loading up as well as unloading, an almost unlimited amount of stooping down, lifting up, and letting down again, which forms the hardest part of all the work, would be saved.

Then, again, it is not only on level ground where the stretcher can be used to advantage, but on uneven and even on quite steep



A SWARM ENTERING A HIVE.

grades also. Although the bottom of my bee-cellar at my former home was on a level with the outside (a very desirable feature), it was quite a little pitch to get to it and from it with the bees. We never had any trouble in carrying up or down on ac-



count of hives slipping on the carrier; but if there should be any danger it could be easily prevented by driving a few headless



nails at proper distances in the upper edge of each side-piece. To carry three hives at a time it would be safer to load three abreast instead of one on top; but we generally found that, when hives are well provided with stores, two at a time make a fair load.

I can hardly emphasize too much that an easy passageway in and out of the cellar, especially if the cellar-bottom is not on a level with the outside, is of great importance. In building anew, or preparing a cellar already built for a bee-repository, this feature should receive the first consideration. It reduces the labor in two directions—saves time and makes the work easier. It would be a well-paying investment to provide a passageway that would admit of carrying the load right to the place of its final storage.

LaSalle, N. Y.

G. C. GREINER.

[These hive-carriers are alike in principle, and hence we have had only one illustration made. They are, unquestionably, better than the two plain poles which we illustrated on page 280. While this carrier would cost a little more, it would be a great deal more convenient, and save unnecessary and excessive stooping. It is so good, in fact, that we have marked it to be incorporated in the next edition of the A B C of Bee Culture. The same kind of carrier is used in factories, in brick-yards, and in many other lines of industry where there is uneven ground and the load requires gentle handling.—ED.]

#### A COMBINED HIVE-TOOL AND FRAME-TONGS.

While I was taking GLEANINGS I noticed several descriptions of hive-tools, and you partly described one you intended putting out (five tools in one, I think). Now, instead of sending you a description of the one I made, and which I find very convenient, I send you the tool itself; and if the weather in Ohio is like ours here you will probably soon find occasion to use it, which I hope you will do and be pleased with it, though I do not make any for sale. I think the uses for which it is intended will suggest themselves



without description. With it you can take hold of a frame and handle it without pinching a bee or breaking the comb; pry covers loose; pry loose and move frames, remove bee-glue, etc.

As I did not get to feed bees in the fall, I am now feeding outside nearly every day, weather being very warm. I may be wrong in feeding, as it may start brood-rearing too soon, but I feared starvation.

Rockville, Mo.

M. A. BARNETT.

[T. G. Newman, something like twenty years ago, used to advertise quite extensively what I think he then called the Jones

frame-pliers. The jaws were quite similar in shape to what you show. The handles, however, did not have the hook and the blade, and in these respects your tool would be superior. But the average bee-keeper does not seem inclined to take kindly to tongs. The Jones tool was left out of supply catalogs at the time, if I am correct, simply because of the little demand for them.—ED.]

#### SHADE FOR BABY NUCLEI.

I infer from your article, and the illustration of your baby-nuclei yard, that they are exposed to the full force of the sun unshaded. My experience is that setting them in the ground unshaded has not been favorable. Does having them suspended on the T supports make a difference? and do you prefer them placed in the sun or shade?

Prophetstown, Ill. HENRY STEWART.

[A part of them were exposed out in the open sun, and others were in the shade. We could not determine which lot did better. If any thing, those out in the sun fared better than those in the shade; and this is the opinion entertained by Mr. Pratt. But a good deal will depend on locality. Possibly your sun is a good deal hotter than ours in summer.

The baby nuclei are put on stakes only as a matter of convenience, to avoid stooping in handling the small frames. There was no other advantage and no disadvantage that I remember.—ED.]

#### MOVING BEES WITH ENTRANCES OPEN; SELLING HONEY AT AUCTION.

I notice that you wish to hear from people having had experience in moving bees in hives with open entrances. I have moved bees without closing entrances, but did it after night. Quarts of bees clustered quietly at the entrances. It would be necessary to cover the hives with sheets in the daytime. There is much less danger of smothering when the entrances are kept open.

A good way to sell extracted honey in quart cans is at public sales. Some have sold as much as \$25.00 worth at 55 to 65 cts. a quart at once, by giving samples and selling at the highest bid.

Milroy, Pa.

A. H. KANAGY.

[A good deal of bee-moving is done at night; and it seems to me it would be perfectly feasible to leave off the entrance-strips, because, even if the bees did get to flying out in the dark, they would not be able to do much damage to horses or men.—ED.]

#### DRONES IN WORKER-CELLS.

Will drones hatch in worker-cells? Would not such eggs be laid by a drone-laying queen or fertile worker? CHARLES WARNER.

Wait, O., Feb. 3.

[Yes, drones will hatch in worker-cells. Eggs producing them may be laid either by laying workers or by drone-layers.—ED.]

## WASHINGTON AS A HONEY STATE.

Will some one tell me what he knows about Washington as a honey State, especially the southwest part, south of Tacoma, where the heavy timber has been cut off? I spent two weeks in that part of Washington last summer, but did not have a chance to learn much about bees there. I could not find any apiaries except a few colonies owned by farmers. Does the red or white fir tree furnish any nectar for honey? If so, what kind of honey is made from either?

Rocky Ford, Colo.

E. J. JOHNSON.

## CAUCASIANS IN THE UNITED STATES IN THE EARLY '80's.

On page 1240 E. F. Phillips speaks of the Caucasian bees as recently introduced. Some year in the 1880's Capt. Hetherington divided with me the four colonies that he imported. I have two of them. I liked them well, but their swarming was constant. See what I have to say in regard to it in the *American Bee Journal* in the '80's, published previous to Mr. Newman's selling out, under the head of "Asiatic Bees."

Capt. Hetherington condemned them. My bees were well marked. I could distinguish them plainly. They were of a dull brownish red. They are a very hardy race of bees, and make their capping frost-white.

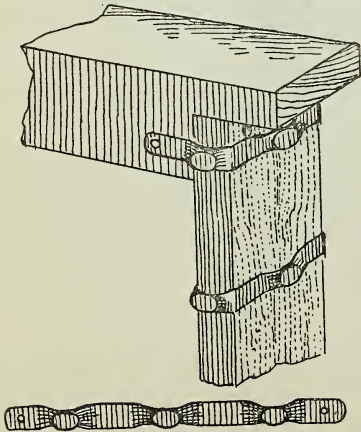
Tully, N. Y.

J. W. TAFFT.

[Dr. Phillips, in speaking of the recent importation of Caucasians, could not mean by that expression that they were a race new to this country, as I happen to know he well knew of the earlier importations by others.—ED.]

## A METAL SIDE AND END SPACER FOR BROOD-FRAMES.

I am sending you a drawing of my idea of the way the metal spacers should be made. If the upper one were nailed to the top-bar I do not see why it would not strengthen the



frame corner. I should not want the lower spacer as now made, because bees would surely fill in between with propolis, in most

localities (ask Dr. Miller). It might be better to have just two pieces to one frame—one at each end of top-bar, but stamped three places, and put on the other way, so as to form the end-spacer as well.

Chadbourn, N. C.

K. B. MORRIS.

[It would be perfectly feasible to put on spacers such as you show; but I think you would find they would not work as freely, when so adjusted, as by the plan we originally showed—the embossed strips running perpendicularly up and around the top-bar.—ED.]



[As promised in our last issue we now take pleasure in offering to our readers a series of articles, or, rather, a book, detailing Doolittle's method of controlling swarming when running for comb honey at outyards—a method whereby he is able to make a substantial increase in the crop of honey. Nor does it require the presence of any one at the outyards except to carry out the manipulations prescribed, take off the honey, and—well, perhaps we had better let Mr. Doolittle tell his own story about his system, in his introductory words. That reminds us that he will probably have it published in book form at the close of this series of articles, and hence the preface.—ED.]

## PREFACE.

Immediately upon the publication of "Scientific Queen-rearing," in 1889, I began work upon the problem of non-swarming, either with or without manipulation, putting fully as many years and as much thought into this problem as I did to bring about the matter published in the queen-book. It is not my intention, in this work, to go over all the ground "traveled" during the past sixteen years, used in fully perfecting the plan as given in this book, as the book is written for the specialist, and particularly for one having or desiring to keep bees in out-apiaries.

While the book is intended for the specialist, it is none the less desirable for the plain, every bee-keeper, with his one-home apiary, or for the amateur with his five to ten colonies; and because this book is for the specialist in bee-keeping I have not gone into first principles or the A B C of our pursuit, as the specialist has passed these rudimentary things long ago. There are plenty of good books before one, and all who are desirous of learning of the "foundation structure," therefore, have no need of repeating here.

For these reasons I have "jumped right into the arena," without fear or asking any favors, and told the reader, in as simple language as I could, and as briefly as possible with a full understanding of the plan in sight, just what was done at the twelve different visits I made to the out-apiary, during one year, and the results accruing there-



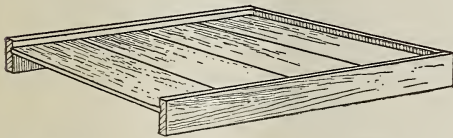
from; and I do not think that I have exhausted the subject, but I *have* given the *first principles* the same as I did in "Scientific Queen-rearing." While I have been digging out the plans as given in this book, others have been building many different structures on the queen-rearing principle I gave, for which I am glad; but they have not undermined the principle, nor brought it to naught.

And now I send this non swarming-section-honey-producing principle out, expecting that others will build different structures on it; and if they do, I shall be glad again. I cheerfully and freely give the principles in this system to all, hoping and believing that the same will prove as efficient in the hands of others as they have with me.

### CHAPTER I.

#### AN AVERAGE OF 114½ POUNDS OF SECTION HONEY PER COLONY IN A POOR SEASON, AND HOW IT WAS DONE.

The sun rose bright and clear on the morning of April 14, 1905, the morning of my sixtieth birthday; and as old Sol peered over the hill-top in all his golden splendor, kissing the swelling buds and cheering all animated nature with the intuition that "spring has come," I proposed to Mr. Clark, my partner, that we go over to the out-apiary, five miles distant, and set the bees out of the cellar, the bees in the home apiary having been set out two or three days previously. The horse was soon hitched up, as the roads were too muddy and full of deep ruts for the auto, and we were at our destination before nine o'clock, with the stands all prepared for the bees.

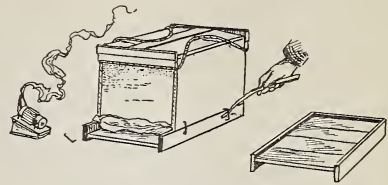


DR. MILLER'S BOTTOM BOARD, SUMMER SIDE UP.

As I use the Dr. Miller bottom-board, the same having a two-inch-deep side for wintering, and a three eighths inch-deep side for summer, a reserve board was placed on the stand of No. 1, row No. 1, summer side up, for the first colony taken out to be placed upon. Before going to the cellar, two smokers were set to burning—one in the bee-yard, side of stand No. 1, row 1, and one at the cellar door just outside. Besides this last smoker, there was placed a soaking-wet (right-sized) piece of cotton cloth at the cellar door, ready for immediate use as soon as any hive was brought out, for there is nothing that will keep bees from pushing out of their hive before you want them to like a wet cloth.

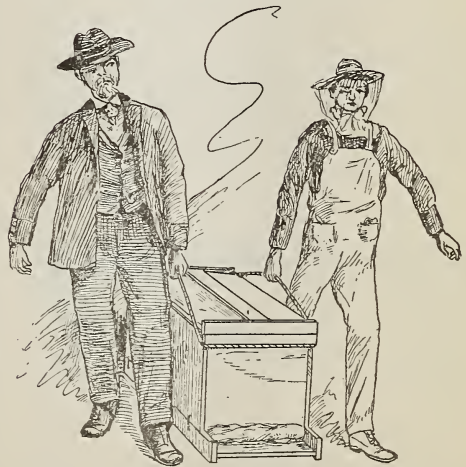
Colony No. 1 was now brought through the cellar door; and while Mr. Clark shut the door, so the bees remaining in the cellar might be kept as quiet as possible, I put the wet cloth over the entrance of the hive,

and then sent a few puffs of smoke in at the entrance through a little hole made by turning back one corner of the wet cloth. A loud roar soon told that this colony was in good condition. A rope was now put under the cleats to the hive, when the same was carried to the bee-yard (Mr. Clark on one



REMOVING THE STAPLES.

side, Doolittle on the other), and set down by the side of the stand it was to occupy. The crate staples which held the bottom-board to the hive were now pulled out by a prying motion with a piece of a wagon-spring, fitted so it would just slip through between the wood of the hive and the top of the staple; then a little more smoke was used to drive the bees back so they would not be in too big haste to come out of the hive when the same was lifted from the bottom-board it had previously occupied, to the one on its own stand. The bottom-board No. 1 had occupied all winter was now turned summer side up and placed on stand No. 2, when colony No. 2 was brought out in the same way No. 1 had been, and placed on it, and so on till all were out.

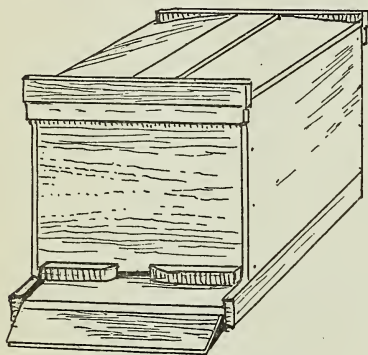


USE OF A ROPE IN CARRYING A HIVE.

In this way all dead bees, dirt, etc., which had accumulated during the winter were at once done away with, leaving all sweet and clean, and in a prosperous condition. Owing to too much work of all kinds for two or three years previous when I was alone, the bees at the out-apiary had been allowed to become reduced in numbers to 21 colonies in the fall of 1904, one of which was queenless

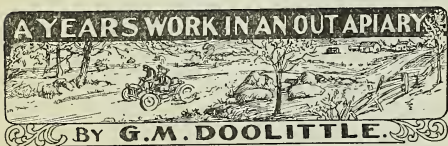
and weak in bees. An inventory taken after all were out gave 11 good colonies—5 fair, 3 weak, and 2 dead—the dead ones being the queenless colony, and one which was made by setting an upper story off late in the season, thinking it had a queen because the bees did not go down through the bee-escape when it was put under to rid the hives of honey from bees.

After the bees had settled down a little from their first flight, two or three that seemed light in stores when putting them on their stands were fed by exchanging two frames of empty combs for two full combs of honey left over from the year before. The entrances were now adjusted to suit the size of the colonies, 3 inches by  $\frac{3}{4}$  being given the good colonies; 2 by  $\frac{3}{4}$  for the fair, and  $\frac{1}{4}$  by  $\frac{3}{4}$  for the weak.



ENTRANCES ADJUSTED.

Next, each hive was looked after to see that all was as tight as possible about the top, and that every thing was in good condition for leaving till pollen became plentiful from the elm and soft maple, when we started for home. This was what was done on the first visit for the season of 1905.



## CHAPTER II.

Ten days later, April 24, the elm and soft maples were in full bloom; and as the day was fine I went to the out-apiary again, arriving there about nine o'clock. I found the bees were almost rolling over each other, carrying in the yellowish-green pollen from the elm and the greenish-pink from the maples.

During the season of 1904 some 70 combs of honey in Langstroth frames, averaging about 7 pounds each, had been left for spring

use, after seeing that all colonies had enough for winter, these being kept, with other combs more or less empty, for a purpose which will be explained further on. Each hive was now opened, beginning at No. 1 on the first row, to see that each had a good queen and honey enough to make them "rich" to a prosperous degree till fruit-trees came into bloom, from three to four weeks later. Any colony that did not have 20 pounds of honey was given one, two, or three of the seven-pound combs till it did have that amount; and if any colony had more, none of it was taken away, as there is nothing which gives better results in bees in the spring than to have the colony so rich in stores that it feels no need of retrenching.

In fact, after trying all other plans for stimulating brood-rearing at the out-apiary I feel to say there is nothing that comes "anywhere near in sight" of this plan of "millions of honey at our house." All talk about daily feeding, as practiced by Mr. Alexander and others, is of no use at the out-apiary, for the apiarist can not be there to attend to it. And, even if he could, results show that the "millions of honey at our house" plan, followed by what is to come hereafter, will outstrip it by far in the race for bees in time for the harvest.

I have dwelt on this matter, as I consider it one of the most important things when an out-apiary is worked for comb honey. After seeing that all had 20 pounds or more of honey, the entrances were enlarged to about 5 inches in length for the best colonies, to  $1\frac{1}{2}$  inches for the weaker ones, or enough so the bees would not be crowded till the next visit, which would be nearly a month later, or during fruit bloom. A careful inspection of the brood showed that all the queens were good, as all brood was in compact form, with eggs on the outside of the outside combs to the brood-nest (not brood-chamber), all the cells within this circle of eggs being occupied with one egg in each.

I have noticed for years that a poor or failing queen does not lay like this, but "scatters" to a greater or less extent according to her poorness. Where I find queens that are poor, as I sometimes do at this time of the year, they are killed, and one of the weak colonies, with its good queen, is united with the colony from which the queen has been killed. By attending to this queen matter when taking off the clover or basswood honey each year, superseding all queens more than three years old, and those younger which may show signs of failure, the problem of poor queens in the spring is practically solved. Far better supersede at that time than in the spring.

This is something well worth "pasting in the hat." A careful look over the yard, the last thing, to see that all was in "applepie" order, and I was soon gliding in the auto over the road toward home at the rate of fifteen miles an hour, which is fast enough, considering the roughness of the roads and our hilly country. The above was what was done at the second visit.





#### MORE ABOUT POULTRY IN THE SOUTHWEST FLORIDA KEYS.

The hen I mentioned that stole her nest and came off with a brood of twelve chickens about Feb. 1, a little later became troublesome in the garden, and so Mr. Shumard caught her and put her over the fence with the rest, supposing she would call the little chicks. Well, either she did not succeed in calling them or else they preferred to stay around the house (that "pocketful of wheat" was a factor in their decision), even if it made "a home without a mother;" and although the temperature went as low as any time during the winter, and we had some cold storms of 24 hours' duration, these little chaps that never *knew* what a shelter was are now the strongest and healthiest chickens I ever saw. At night they stayed in the woodpile of round logs and limbs, and were scudding about when it was raining considerably, evidently because they liked the fun of it, and nothing else. As there were three broods to be fed out of that "pocket" I finally made a little enclosure that would admit the chicks but keep out any of the older ones that occasionally "jumped the fence;" and during the rainy days they would go "streaking it" for the wheat (ten rods away) whenever they got hungry, in a way that was really comical. As nearly as I can make out, they took care of *themselves* when not over three weeks old. Just think of it! a climate where there is no need of incubator, brooder, coops of any sort, nor even a *natural mother* after they are three weeks old! All you need to do is to get rid of their natural enemies of the island, and give Nature "full swing."

I questioned Mr. S. about insect enemies; and, as nearly as I can make out, he procured his stock from some that were absolutely healthy and clean, and has been very careful ever since about taking any chances in the way of infected fowls. It is no more than fair that I should add his egg-yield has fallen off a good deal since he fenced the poultry off on the north part of the island. Laying hens, or at least *his* laying hens, seem very fond of human companionship. I can not avoid the conclusion that they like to have their nests near where the family live, and that they take a sort of pride in making everybody aware of the fact when an egg has been laid. There is some excitement in being chased off the garden; and when they are once convinced their owner loves and admires them, they don't mind having a "scrap" or two occasionally.

They like to be around where there is something "doing."

Poultry are very fond of "donax," and it would be an ideal animal food were it not for the trouble of getting them out of the sand. I suggested teaching them to follow the waves and help themselves; but they say poultry are rather shy of salt water. Ducks will go right into the salt water and help themselves; and if they can thrive on animal food alone, *here* is the place where the owner would have nothing to do but to *gather his eggs and sell them*.

I saw quite a flock of wild ducks feeding on donax this morning. Not long ago, I am told, a nice flock of tame ducks came along the beach, and were taken up and cared for, and, up to the present time, nobody knows where they came from. These things I have mentioned may seem at first glance trivial; but they tell us what is possible, and, with a little care and investigation, I think a great business might be worked up here with very little expense for fixtures.

#### GREEN FOOD FOR FOWLS AND CHICKS.

From the great avidity with which fowls here devour green stuff in the garden I am convinced it will pay well in eggs to grow something to supply this craving. Lettuce is all right, and I have been experimenting on other garden stuff. I had three rows of spinach in my little enclosure of two-foot netting. While this kept out the grown fowls, the two-inch mesh admitted that brood of twelve at their pleasure; and as soon as my spinach took on its second leaves they followed the rows from end to end, snipping the green shoots every morning. I have been wondering if this daily ration of young spinach, with the wheat, has not something to do with their wonderful agility, strength, and endurance. With the ants and other insect food they get, does it not make just about a "balanced ration" that our experiment stations talk about so much?

#### THE BEES ON OUR ISLAND.

Although we have had drones flying to some extent for more than a month, I am ashamed to confess I have not at this date a single young laying queen. The drones reared occasionally in worker-cells by our imported Caucasian either did not answer or the weather was hardly warm enough, and still enough so to favor the meeting between drones and queens. On the 14th of March I saw a young queen that was hatched on the 6th leave her nucleus hive. I called to some friends near, and in about twenty minutes she came back with very plain evidence of fertilization. To-day, March 16, I sat down in front of the same nucleus hive to see how much pollen was coming in. Just about the time a queen begins to lay, pollen usually begins to come in pretty lively. To my surprise, this queen came out of the entrance, walked around on the front of the hive, and then went back inside. I called Mrs. Root. The queen soon came out again, took wing, and was gone about ten minutes. This she did three times—the last time being gone

twelve minutes. I should like to ask those familiar with such things if it is usual for young queens to go out unattended after fertilization. I must confess I have not read closely what has been written of late in regard to the matter. I remember that, years ago, there were a few who declared a queen is sometimes, if not always, fertilized more than once before she commences laying. Has any thing new come up in regard to this matter of late? Do queens ever go out to take another look at "all outdoors" before retiring and making maternal duties the all-absorbing end and aim of life?

*Later.*—To-day (March 17) on opening the nucleus hive to see if the queen was laying I found her on the combs, with plain evidence *once more* of fertilization. I do not see how there could have been any mistake.

One other thing I have noticed in connection with this incident: When any of our young queens are of the proper age to take their wedding-trip I notice a dozen bees or more on the front of the little hives near the entrance, at about 2 or 3 P.M. Whenever I see this cluster, if I watch pretty closely I usually see the young queen come out soon after. During the rest of the afternoon there are more or less bees "nosing around" where she crawled over the front of the hive when getting ready to fly. One queen took wing from the top corner of a hive, and I saw bees hanging around the corner for several hours after. No doubt their acute sense of smell enabled them to track her in something the same way a bloodhound follows the scent of a fugitive. The bees have a rather different motive, however, for theirs is devotion and loyalty to their "beloved queen." They, it would seem, in very truth "love the very ground she walks on;" and, while I am about it, I like to see a young man so devoted to the girl of his choice, the queen of his heart and life, that he loves the very spot where her foot has pressed the green grass; and when these two keep it until they are nearly seventy years old, as a rule I should consider them "near to the kingdom of heaven," for they are, in one very important respect, just where and just as God intended and wants them to be.

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#### OUR IMPROVED CHESTNUTS: GRAFTING CHESTNUTS, ETC.

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*Mr. A. I. Root:*—I commenced to bud and graft when I was but ten years old. I tell you this so you may know my experience in grafting, for I had much trouble in the beginning to graft the chestnuts as successfully as every other kind of fruit. The best way in this section is to cut the grafts before the buds swell in spring; tie them in bundles, and put them in the cellar. If they shrink a little it will not hurt them. Then wait with your grafting until the leaves on the trees you want to graft are from  $\frac{1}{4}$  to  $\frac{1}{2}$  inch long. Since I follow this rule, from 75 to 90 per cent of my grafts will grow. This way you can graft the chestnut successfully till the leaves are half grown. The reason for waiting is this: The chestnut-tree starts late in spring; but when it does start it does so with a rush. This bursts your grafting-wax, lets it in air, and means the death of your graft. What I have done and what I know about the big chestnuts I will tell you next.

About twenty years ago I grafted the first big chestnuts on my own farm. In three years I had a lot of the

finest chestnuts I ever saw, and they are good, too, boiled or roasted. I don't think green chestnuts of any variety ought to be eaten. Since then I have grafted them by the acre for farmers in the neighborhood. All together I grafted eight acres, besides hundreds of single trees; but like you, Mr. Root, I am getting too old to climb trees. I am only two years younger than yourself. If you have not done so already, I would advise you to plant some chestnut-trees right at your home in Medina, and don't plant them all in the woods for the squirrels, for you will find they go for your chestnuts before any other nuts.

Yes, the trees bear as young as you are informed. I have seen little trees bent down until the big heavy burrs were resting on the ground, and big trees that looked more like weeping willows than any thing else. I have often seen half a dozen of the big burrs hanging on a limb not bigger than a common leadpencil.

Now for the best varieties. The great Paragon is by all odds the great leader here of all the different kinds tried so far. The Numbo is also a good one, but it does not bear quite so abundantly. The Spanish is not worth raising here. It is too bitter; besides, the kernel is in sections of all shapes; and that bitter skin around the kernel is between all the joints, making it taste more like an acorn than a chestnut. Don't cut any grafts from a tree in full bearing. If you do your grafts will bloom the same year they are grafted. This will injure the grafts greatly.

You tell your friend in Michigan to get a good grafter next spring, and get that fine row of trees grafted. In a few years he will have something to make his heart feel glad, and a wonder for the neighbors. If you have not the Paragon chestnut (for you must have it) I can send you a boxful of grafts. I charge you nothing for them. If you agree to pay the freight, say so and you shall have them next spring. J. H. BURR.

Loganville, Pa., Dec. 11.

[Perhaps the good brother who writes the above did not intend it for print, and I am afraid I shall get him into trouble by printing his last paragraph without his knowledge or consent; and I would suggest to him that he had better put a price on his chestnut grafts, say sufficient to cover postage and to give him something for his trouble. I am sure the readers of GLEANINGS would prefer to get them that way rather than have him send them free of charge. I fear I shall not be able to accept his kind offer, owing to a multitude of other cares. The information he has given will probably be valuable to a great many.—ED.]

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#### Regarding Our Advertisers.

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F. W. Bird & Son, E. Walpole, Mass., manufacturers of the famous paroid and Neponset roofing papers, publish a very interesting and instructive booklet of farm building plans which they will send free upon request. This booklet has proven to be so popular that the third edition has already been published. It is, indeed, well worth sending for and every one of our readers should have a copy. Cut out this notice, or mention GLEANINGS, and send a two-cent stamp. The booklet will be mailed to you at once.

The demand for a small amount of power which can be applied to several uses, exists on every farm. In grinding, sawing, pumping, and in numerous other operations, some easily applied power would mean a great saving of labor and time. Bee-keepers have many uses for small engines or motors. If you have felt the need and want to know how to accomplish your work as quickly as possible, you should purchase a gasoline engine. We recommend the use of gasoline engines in preference to those run by any other fuel. The Lyons Engine Co., Lyons, Mich., who have a page ad. in this number of GLEANINGS, manufacture a very high-grade, medium-priced engine, and are prepared to furnish three or four different styles and sizes. If you will send for their catalog and mention GLEANINGS we are quite sure that your inquiry will be taken care of carefully and full information furnished to you.



# Joseph Horne Co.

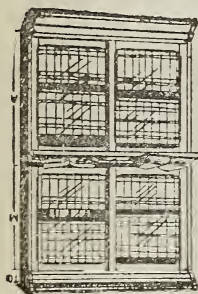
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| SHIRTWAISTS—of butcher's linen, 95c; of very fine India linen with embroideries and insertions.....                           | \$1.50 |
| KIMONOS—of Arnold flannelettes, percale designs with contrasting bands as a trimming; full length, \$1.45; short kimonos .... | 85c    |
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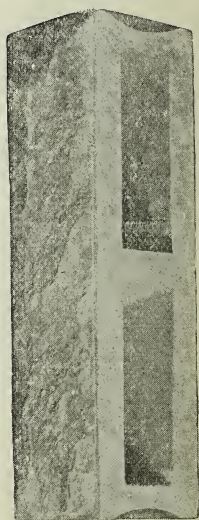
## Concrete - Building - Blocks

MANY of the readers of GLEANINGS IN BEE CULTURE have undoubtedly noticed our advertisement at one time or another. In fact, hundreds have written us saying, "I saw your advertisement in GLEANINGS." As a result we have sold a large number of machines to readers of this valuable publication, and we deemed it no more than courtesy to those with whom we have had the pleasure of doing business to thank them, through this medium, for their patronage, and, further, state that we are in the market again this year with all the machines we advertised and sold last season, besides several new and distinct types. The concrete-building-block business has assumed such enormous proportions—the product displacing every other building material—at once and apparently for all time wherever established, that we feel warranted in predicting that the time is fast

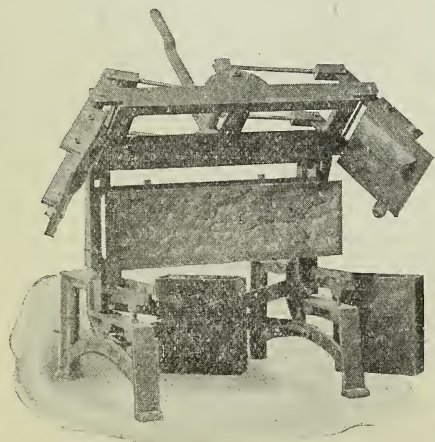
approaching when one who is thinking of erecting a building, no matter whether it's house, barn, business block or factory, will give no other material even a thought.

THE BUILDING OF HOMES has changed as much as has the method of doing any other work in the past decade. As is true in the case of modern machinery, "Necessity has become the mother of invention."

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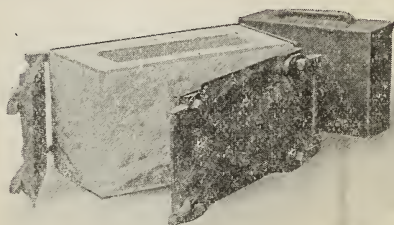
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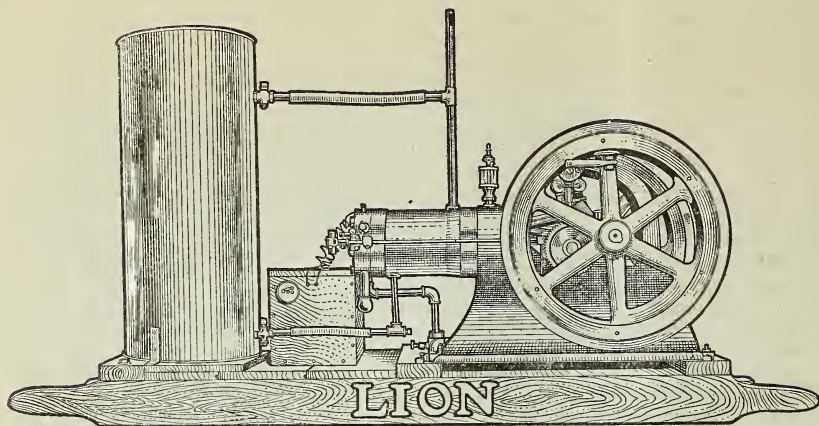
Space does not permit us to go into detail concerning our different machines; but to any one who is interested we shall be pleased to mail our new descriptive circular and price list. We have outfits ranging in price and product to suit one who may want to build a few blocks for his own use to those suitable for a contractor or one who may want to establish a factory.



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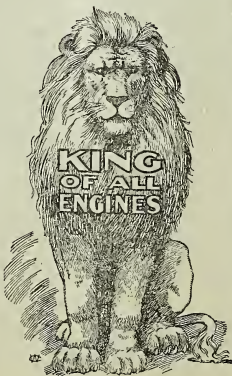
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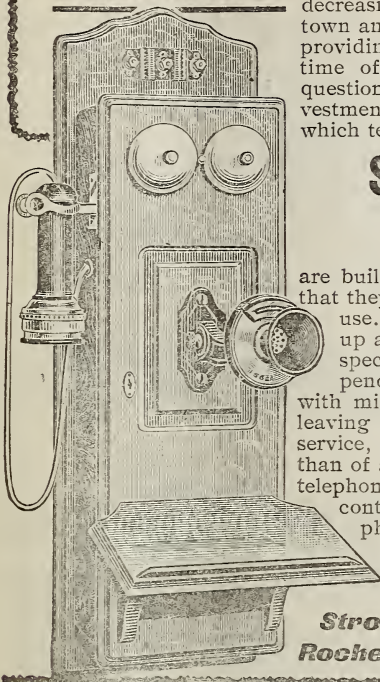
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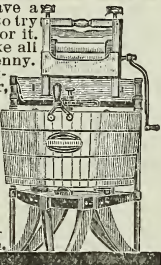




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THE BEST LIGHT CO., 300 E. 5th St., Canton, O.



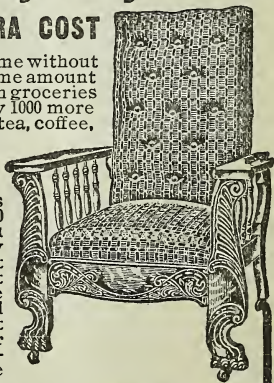
**1 CENT IS ALL IT COSTS** to write postal for our big Free Bicycle catalog showing all models at lowest prices. **DO NOT BUY** a bicycle or a pair of tires until you learn our marvelous new offers. We ship on approval without a cent deposit, prepay freight, allow 10 Days Free Trial! All our new and wonderful propositions with catalogues and much valuable information sent you FREE for the asking. **WE WILL CONVINCE** you that we sell a better bicycle for less money than any other house. Buy direct from the factory. If you want to **Make Money or Earn a Bicycle** write for our Special Offer. **TIRES, Coaster-Brakes, built-up wheels** and all sundries at half usual prices. **Do Not Wait**, but write us a postal today and learn everything. Write it now.  
**MEAD CYCLE CO. Dept. M-188 Chicago, Ill.**



**EXTENSION AXLE NUTS CURE WABBLES.**  
 Make old buggies run like new. Quick sellers. Very profitable for agents. Exclusive Territory. Hardware Specialty Co., Box 535, Pontiac, Mich.

## Make Your Grocery Money Buy Both GROCERIES AND FURNITURE WITHOUT EXTRA COST

Do you know that you can get these nice things for your home without extra cost by buying your groceries direct from us? The same amount of money you are now paying out for groceries will get both groceries and these beautiful premiums, or your choice from nearly 1000 more shown in our big free catalog. Every day you buy or use tea, coffee, soap, baking and washing powder, flavoring extracts, etc., which if purchased on our "Factory to Family" plan—direct from the maker—can be had for same prices or less than you are now paying the regular dealer and in addition we give these nice premiums. If you buy \$2 worth of groceries we give a \$2 premium; with \$5 worth a \$5 premium; with \$10 worth this \$10 couch or chair or any other \$10 premium you select from our catalog. Why not make your grocery bill pay your furniture bill—or furnish your home without extra cost? You will be surprised how quickly you can get these useful, beautiful articles. To convince you that the groceries and premiums we furnish are high-grade we send both on 30 days trial. We even allow you to use them—test them—and if not satisfactory you can return them at our expense and your money will be returned without a question. That proves our goods are right—our premiums are right—our dealing with our customers is right—honest.



### GROCERIES AT HALF PRICES ON OUR "FACTORY TO FAMILY PLAN"

If you don't need the premiums you can get our high-grade groceries for just one-half what regular dealers charge. We give you a Pure Cream Tartar Baking Powder for only 12½c which dealers sell at 25c a can; a 25c bottle of Lemon or Vanilla Extract for 12½c; Family Laundry Soap at 2½c a bar (regular price 5c a bar); box of Fine Toilet Soap (3 bars) only 12½c for which dealers ask 25 to 50c. In fact, we save you one-half on everything we make. Then we have another saving plan—we call it our "Club of 10 plan" which is fully explained in our large free Furniture catalog and Style Book. You ought to send for this money-saving book today.



**CROFTS & REED**  
 915 Austin Avenue  
 Chicago.



## How Your Money Comes Back on this Vehicle.

Because we manufacture it and know of what it is made and how it is made and all about it, we can sell it on terms never before offered. Just read.

First, we send it to you to try 30 days. If you are not satisfied, you're nothing out.

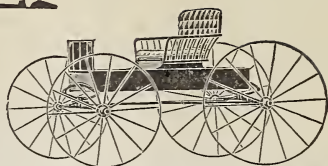
### THREE FULL YEARS GUARANTEE.

But if you like it, (as you will) you buy it at just about half dealer's price—and you have exactly the same right of return and money back for three full years.

That's our guarantee. If any defect or fault appears, if it is not what it should be or what we represent it to be, call for your money.

That's our plan. It's the way we are dealing with hundreds of vehicle buyers. It's a guarantee that we toe the mark—build honestly and deal straight. It accounts for all our buyers being satisfied. Don't forget that we are factory people. We buy nothing but materials. We make everything we sell, and sell everything direct to users.

That accounts for the extraordinary low prices we make. Same low prices on all classes of vehicles. Two special bargains right now in our general catalogue. Write for free copy, for free copy.



ON TRIAL

The Progressive Vehicle Mfg. Co., Dept O. Ft. Wayne, Indiana.

## Have You Seen the New Split Hickory Vehicle Book?

Top Buggies



This is an illustration of our new 1906 Split Hickory Special. You can't see from this small illustration just what it is like. Our catalog shows it gotten up in 19 different styles. We can furnish it any way you want it and ship it promptly. The price is \$50.00 with a legal binding guarantee for two years, and shipped anywhere to anyone on 30 Days Free Trial.

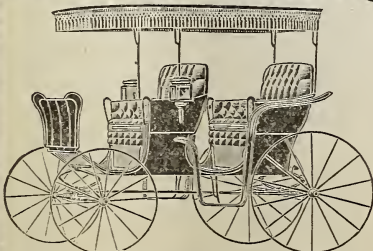
From \$35 to \$50

for one. It costs you nothing but a penny for a postal, or a two-cent postage stamp. You can't know what our great proposition is until you get our catalogue. You may not think you will be interested—perhaps you may not. We do not sell every one, but we can save you money. We guarantee every vehicle that we manufacture for two years. Our Guarantee is a legal one and it means full value to every purchaser.

Split Hickory Name Plate on a vehicle stands for quality. It stands for fair treatment, and if our goods are not satisfactory after you have given them 30 Days Free Trial, they cost you nothing. The new catalogue tells you all about the factory we have equipped in which we manufacture our SPLIT HICKORY SPECIAL TOP BUGGY. It tells all about the saving that you make in buying from headquarters, how you save the dealer's and middleman's profit, which is at least \$25 on a buggy like our Split Hickory Special. We want you to know all about our plan. Will you write for our new catalogue today?

The Ohio Carriage Mfg. Co., H. C. Phelps, Pres.  
Station 293, Cincinnati, Ohio

## 33 Years Selling Direct



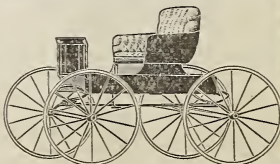
No. 309, Canopy Top Surrey. Price complete \$83. As good as sells for \$85 more.

approval and guarantee if not satisfied as to style, quality, and price.

We are the Largest Manufacturers in the World

selling direct to the consumer exclusively. We make 200 styles of Vehicles. Send for large free catalog.

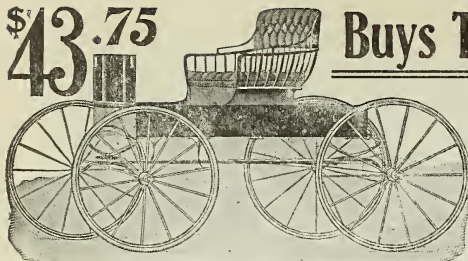
Our vehicles and harness have been sold direct from our factory to user for a third of a century. We ship for examination and safe delivery. You are out nothing



No. 721-1/2, Driving Wagon with Large Phaeton Style Seat and 1-1/4 in. Cushion tires. Price complete, \$65.50. As good as sells for \$25 more.

ELKHART CARRIAGE & HARNESS MFG. CO.,  
Elkhart, Indiana.

**\$43.75**



## Buy This Rubber-Tire Wagon

Union Quality. Fully Guaranteed. Best hickory wheels; 3-in. Rubber Tire; long-distance, dust-proof, high-arched axles; oil-tempered springs. First-quality material and finish. Worth nearly double our Factory Price. We ship for your examination, without a cent in advance, if desired, and allow

**30 DAYS FREE TRIAL**

Money refunded on all purchases not satisfactory. You save dealers' profits. We build 150 styles of Vehicles, from \$26.50 to \$150. 50 styles Harness, \$5 to \$60. Write to-day for our 200-page Illustrated Style Book. Free for asking.

**Union Buggy Co., 45 Saginaw St., Pontiac, Mich.**

### No Money in Advance

Vehicles and harness sold direct from factory at lowest factory prices.

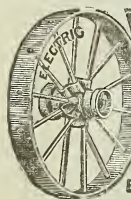
### Genuine Free Trial.

No money, no note to sign, no deposit. "Anderton" Vehicles must sell themselves. Two years approval test, backed by \$25,000. bank deposit put up as a guarantee to make you sure of your money back. Write for our free 110-page illustrated catalogue No. 21. It fully explains our offer.

**THE ANDERTON MFG. CO.,**

41 Third Street,

Cincinnati, Ohio.



### WAGON SENSE

Don't break your back and kill your horses with a high wheel wagon. For comfort's sake get an

### Electric Handy Wagon.

It will save you time and money. A set of Electric Wheel Wheels will make your old wagon new at small cost. Write for catalogue. It's free.

**ELECTRIC WHEEL CO., Box 95, Quincy, Ill.**



### FENCE Strongest Made

Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days free trial. We pay all freight. Catalog shows 37 styles and heights of farm and poultry fence. It's free. Buy direct. Write today

**COILED SPRING FENCE CO. Box 101 WINCHESTER, INDIANA.**

### BROWN PAYS THE HEAVIEST FENCE MADE

All No. 9 Steel Wire. Well Galvanized. Weighs 1/2 more than most fences. 16 to 35¢ per rod delivered. We sell all kinds of fence wire at wholesale prices. Write for fence book showing 110 styles. The Brown Fence and Wire Co., Cleveland, Ohio.



### POULTRY FENCE

that keeps stock out of your poultry yard, stands up stiff on few posts and requires no top rail or bottom board, is our specialty. You can't afford to buy poultry fencing without knowing more about the PAGE. Write us.

**Page Woven Wire Fence Co., Box 5473, Adrian, Mich.**

## Paint Without Oil

**Remarkable Discovery that Cuts Down the Cost of Paint Seventy-Five Per Cent.**

**A Free Trial Package and a Big Book Telling All About Paints and Paint-Making are Mailed Free to Everybody Who Writes.**

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powderpaint. It comes to you a dry powder and all that is required is cold water to make a paint weatherproof, fireproof and as durable as oil paint. It adheres to any surface, wood, stone or brick, it spreads and looks like oil paint and yet only costs one fourth as much. For many purposes it is much better than oil paint and is indispensable to every property owner.

Write to Mr. A. L. Rice, 553 North St., Adams, N. Y., and he will send you a free trial of his new discovery, together with color cards and his valuable book on Painting, all free. This book lets you into all the secrets of paint-making, exposes fake paints, tells you what kind of paint to use for different purposes and shows you how you can save and make a good many dollars. Write today and the book and free trial of Paint will be sent you by return mail.

## LADIES WANTED

### ON SALARY

for a large established firm to solicit and demonstrate a modern toilet soap, distinctly different from all other soaps. No traveling. Easy sales everywhere. Write for particulars and free sample.

**The D. Co. 715-725 S. W. St. Canton, O.**

## HOW TO BUILD INCUBATORS AND BROODERS



A 10-year-old boy can do it with Peerless plans. Anyone can build successful machines and make money making them for others. These illustrated plans complete, showing every step of construction, are free with every request for our new Incubator and Brooder Supply Catalog. It tells all about the New

### ACME COMPOUND WAFER REGULATOR and AUTOMATIC LAMP

Combined damper regulation, saves 1/2 the oil, will fit any machine. Write for catalog. H. M. SHEER CO. Dept. 38, Quincy, Ill.

**PLANS FREE**



## INVESTIGATE THE POULTRY BUSINESS



Write for a free copy of my  
book describing

**Profitable  
Combinations  
of Egg, Broiler  
and Roaster  
Farms**

It gives the prices paid for eggs and poultry week by week for the past three years. It tells how and when a hatch taken off each week in the year could be most profitably marketed. It shows how you can make \$2.00 on a large winter roaster. It tells what profits can be made with each of the popular breeds, and the costs of production. I have helped thousands to make money with poultry. My Model Incubators and Brooders are used on the money-making farms. It is my business to teach those who use them to do so profitably. Whether your needs are small or large, I will furnish without charge, estimates and plans for a complete equipment that will insure success without your spending a dollar uselessly. Send for my complete literature.

**CHAS. A. GYPHERS**  
3927 Henry St. Buffalo, N. Y.

### "METAL MOTHER" BROODER- HATCHER



Is a marvel; does double work; successfully broods one batch while running another hatch. Gets the kind of chickens all like. A complete hatching and brooding plant for only \$7.50. Our all metal system is absolutely fire proof, will hatch hen, duck, goose and turkey eggs equally well and at the same time. Our Brooders are made for convenience, economy and to raise healthy chickens. Hatchers \$5.00, Brooders \$5.00, Brooder-Hatchers \$7.50. Catalog free. Write now.  
**\$5** CYCLE HATCHER CO.,  
Box 223, Salem, N. Y.



## Let Me Tell You the Special Price On This Genuine 1906 Chatham Incubator

**Y**OU see we make more incubators than any other concern in the world.

We have two big factories equipped with every up-to-date labor-saving appliance.

We buy lumber in immense quantities.

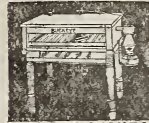
And turn out from six to seven hundred Incubators a day.

This means high grade machines at low cost.

Now we are after the trade with an Incubator of up-stairs quality at a down-stairs price. And to prove to you that Chatham Incubators are the best made, we are willing to let you try one 84 days **FREE**.

### GEM INCUBATORS AND BROODERS

Time tested and proven success; thousands in use; sold direct to you at wholesale prices. You get the maker's guarantee and save the middle-man's profits. The Removable Chick Tray and Nursery—a feature no other has—explained in catalog. 10¢ free. Write for it today.  
Gem Incubator Co., Box 53, Trotwood, O. \$4.88 up



### Take Your Choice.

Guaranteed Self Regulating Incubators at \$1 and \$2 per month. Let RENT rent pay for it. We pay freight. Buy on 40 Days Trial or buy parts and plans and build one. Prices, ready to use: \$5.00 up. Free catalog—tells all.

BUCKEYE INCUBATOR CO., Box 84, Springfield, O.

### \$12.80 For 200 Egg INCUBATOR

Perfect in construction and action. Hatches every fertile egg. Write for catalog today.  
GEO. H. STAHL, Quincy, Ill.



### BANTA Incubators & Brooders

Backed by 14 Years  
of Successful Use by



poultrymen all over the world. No guesswork. They are automatic in regulation and ventilation. Fully guaranteed to give YOU satisfaction. Send for free book "BANTA - BENDER MFG. CO., Dept. 23, Ligonier, Ind."

### WATER GLASS EGGS

Preserve them for many months just as fresh as the day they were laid with

#### WILLETT'S WATER GLASS PRESERVER

The only sure way of preserving eggs to sell at high prices. Pure water glass. Cost, about 1c per dozen. Pint, 15c; quart, 25c; gal. \$1. Circulars free for postal. Willett's Water Glass Egg Preserver Co. Box 63, Anderson, Ind.



### LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address COILED SPRING FENCE CO. Box 448 Winchester, Ind.



Try It  
84 Days  
FREE

You can take off four hatches, and, if the machine isn't exactly as represented send it back at our expense. Could we make a fairer offer?

But we go further even than this and guarantee every Incubator we sell for five years—a direct iron-clad guarantee. Send for our FREE Catalog today.

Your name and address on a post card mailed at once gets the whole story by return mail.

**The Manson Campbell Co., Ltd.**  
216 Wesson Avenue, Detroit, Mich.

# 85 BEST Farm Gates SOLD to ONE MAN

and are now in actual everyday use on his farm. This certainly is pretty strong evidence of the superiority of the BEST GATE. A good gate is necessary to complete the fences on a well kept farm. It will more than pay for its first cost in one season in the time and labor it saves the farmer in passing through it, or in driving from one field into another.

Shelbyville, Ind., March 3, '06.  
Best Gate Co., 67-69 E. Jackson St.  
Shelbyville, Indiana.

Dear Sirs:—Please deliver to bearer, Albert Luther, six 12 ft. BEST Gates for Fairland farm. This will make eighty-five BEST gates bought of you for our farms in this county, many of which have been in use several years. They are light, durable, and do not sag or warp, and have not cost one cent for repairs. In view of these facts, I will continue to buy BEST Gates, and no doubt will have one hundred or more in use before fall. Very truly yours,  
J. B. HAMILTON.

## The BEST Gate

is certainly just what its name implies—it is the BEST for any purpose. It is light, strong and convenient to handle. The frame is made of select hard pine and strongly braced. There are TEN STRANDS OF HIGH CARBON COILED SPRING STEEL WIRE on this gate which are attached to the frame work with a PATENT RACHET so as to allow for tightening when needed. You cannot reproduce this gate for less than 50 PER CENT MORE THAN WE ASK. We sell the BEST GATE

### Direct from Factory to User

and PREPAY THE FREIGHT as far as 300 miles from Shelbyville. PRICE \$5 and upward according to the size of gate. The illustration below shows the strength of THE BEST GATE. It is not an exaggeration for this gate will hold a weight of more than 700 lbs. without buckling or sagging. Write for our booklet, it describes The Best Gate more thoroughly than we can in this advertisement.



### THE BEST GATE CO.

Dept. L

Shelbyville, Indiana.





## PIONEER GUARANTEED NURSERY STOCK AT WHOLESALE PRICES

All stock guaranteed disease free and true to name.  
Hart Pioneer Stock is pure bred and produces heavy crops.  
Value received for every dollar sent us. No Agent's Commission  
WRITE FOR COMPLETE PRICE LIST. WE WILL SAVE YOU MONEY  
**HART PIONEER NURSERIES, Est. 1867 Fort Scott, Kan.**



: 60 :

### Beautiful Flowers FREE

**25c.** to pay the cost of packing and postage. You will receive this Grand Collection of Beautiful Flowers, and our New Seed List, the only liberal offer ever made, and a Conpon Check that will give you one of the finest Farm Papers published, by sending for this grand offer:

#### 25 Packages Seed

1 pkt. Snowball Aster.  
1 pkt. Apple Bloss. Balsam  
1 pkt. Mixed Portulaca.  
1 pkt. Mixed Sweet Pea.  
1 pkt. Sweet Mignonette  
1 pkt. Sweet Alyssum.  
1 pkt. Sweet William.  
1 pkt. Mixed Poppy.  
1 pkt. Mixed Candytuft.  
1 pkt. Mixed Larkspur.  
1 pkt. Mixed Pansy.  
1 pkt. Mixed Nasturtium

1 pkt. Morning Glory.  
1 pkt. Mixed Calliopsis.  
1 pkt. Mixed Calendula.  
1 pkt. Mixed Nigella.  
1 pkt. Mixed Phlox.  
1 pkt. Sunflower.  
1 pkt. Sweet Rocket.  
1 pkt. Carnation Pink.  
1 pkt. Mixed Four o'Clock.  
1 pkt. Mixed Marigold.  
1 pkt. Mixed Petunia.  
1 pkt. Mixed Zinnia.  
1 pkt. Mixed Verbena.

**25 Bulbs,** a Beautiful Collection, sent with this order, including Hyacinths, Tulips, Crocus, Tuberoses, Gladioli, Camellia, Oxalis, if you will send at once 25 cents in silver or stamps. Address

**E. C. HOLMES, Somerville, Mass.**



### HARDY EVERGREENS

Invaluable in both ornamental and protective planting. The Cedars, Firs, Spruces and Pines offer a wide variety for these purposes. We grow a large assortment and offer strong, well rooted stock. Complete horticultural establishment—nearly forty years old. 1200 acres. Full line of seeds, plants and trees of all kinds. Free catalogs. Address

### Jewell Nurseries

Lake City, Minn.  
Box 12

## Vaughan's Seed Book

152 PAGES—READY NOW  
FREE, Write or Call

### Vaughan's Seed Store



84-86 Randolph St.  
Chicago



### HOW TO GROW CACTI

is fully explained in the new book just issued, "Cactus Culture for Amateurs," 80 pages, finely illustrated, describes 500 varieties. Tells where found, treatment to produce bloom, soil, how to graft, how to grow from seed, and where to get all rare Cacti and Succulents, price 25c. 40-page catalogue of Cacti, and nice sample Cactus (named) 10c. E. Texensis (like cut) 25c. Old Man (genuine) 50c. 10 nice Cacti, all different, \$1.00. Circulars free. **The Callander Cactus Co., Dept. 48, Springfield, Ohio.**



### THE BEST STRAWBERRY

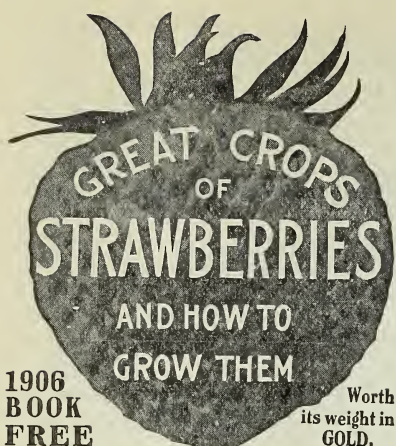
is Senator Dunlap—large, fine colored, very productive. Catalog of Strawberry and other berry plants FREE. L. J. Farmer, Box 608, Pulaski, N. Y.



### THE BEST RASPBERRY

is Plum Farmer; early, large, enormously productive. Catalog of raspberry, strawberry and other berry plants free. Write for it NOW. L. J. Farmer, Box 608 Pulaski, N. Y.





The Book that beats them all because it tells how big crops of big fancy strawberries can be grown every year and how to pick and pack them for big prices. It keeps Experienced Growers posted on new discoveries in plant breeding and latest cultural methods. It takes beginners through a complete course of instruction; tells just when and how to do everything to get **Big Results**, and how to start a Profitable Berry Farm with little capital. Beautifully illustrated with photo-engravings. Don't order your plants until you read this book. It is free.

R. M. KELLOGG CO., BOX 400 THREE RIVERS, MICH

A beautiful colored plate of our

## New Eaton Red Raspberry

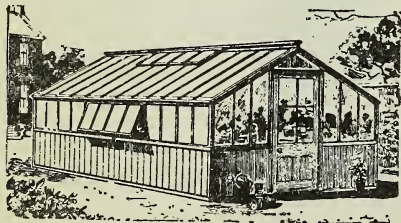
and our strawberry catalog of valuable information about varieties with instructions for beginners. Free to all.

THE FLANSBURGH & POTTER CO.,  
Lansing, Michigan.



## PLEASURE AND PROFIT

A Premier Greenhouse will keep you supplied with flowers, fruits, and vegetables all the year round. Saves its cost in a season; gives tone to your residence, and creates a pleasant and profitable hobby.



The illustration shows a Premier Greenhouse—length, 12 feet; width, 8 feet; height, 8 feet. It has double walls, double-strength glass, plant-tables, etc., fitted complete; built in sections, and can be erected in two hours. The price is \$63.00.

George B. Clementson, Esq., Lancaster, Wis., writes: "The Premier Greenhouse is the most attractive proposition for the plant-lover I have ever seen."

Catalog and price list on application. Greenhouses from \$20.00. Conservatories, Garden Frames, Summer Cottages, Auto-houses, Poultry-houses, and Portable Buildings of every description.

Charles H. Manley,

Dept. B C, Premier Manufacturing Works, St. Johns, Mich.

## Just a word!

It is now so late that garden seeds should reach the planter without delay of getting catalog first. Below are two of our most popular offers. Write us, and seeds will come by return mail.

### A Complete Garden for \$1.00!

Catalog Price, \$2.00

One packet each of the following:

|                        |                        |
|------------------------|------------------------|
| Mattituck Cauliflower, | Danvers Carrot,        |
| Grand Rapids Lettuce,  | Fordhook Cucumber,     |
| Scarlet Globe Radish,  | Giant Gibraltar Onion, |
| White Globe Turnip,    | Vegetable Marrow,      |
| Nuevo Tomato,          | Chinese Giant Pepper,  |
| Golden Heart Celery,   | Rockyford Muskmelon,   |
| Wakefield Cabbage,     |                        |

One pint each of the following:

|                           |                       |
|---------------------------|-----------------------|
| Alaska Peas,              | Champion Peas,        |
| Golden Bantam Sweet Corn, | Evergreen Sweet Corn, |
| Golden Wax Beans,         |                       |

### OUR SPECIALTIES FOR 50c

One packet each of the following:

|                        |                       |
|------------------------|-----------------------|
| Golden German Beans,   | Wakefield Cabbage,    |
| Mattituck Cauliflower, | Grand Rapids Lettuce, |
| Giant Gibraltar Onion, | Earliana Tomato,      |
| Vegetable Marrow,      | Fordhook Cucumber,    |
| Nuevo Tomato,          | Evergreen Sweet Corn, |

Catalog Price \$1.10

Catalog Free on Request

**E. C. GREEN & SON**  
Seedsman - - MEDINA, OHIO

## Forest Tree Seeds and Seedlings

To close out I offer the following seedlings at prices named, f.o.b.:

### Catalpa Speciosa:

6 to 12 inches..\$1.50 per M.; \$12.50 per 10M.  
1 to 2 feet..... 2.50 " 20.00 "

### American Linden (Basswood):

Collected Seedlings:

6 to 12 inches..\$3.00 per M.; \$20.00 per 10M.  
1 to 2 feet.....5 00 " 40.00 "

### Althea Rosea: (Seedlings Mixed Colors)

6 to 12 inches..\$2.00 per M.; \$18.00 per 10M.  
1 to 2 feet..... 3.50 " 30.00 "  
1 to 2 feet..... 3.00 " 25.00 "

Send for prices of other seedlings, seeds, etc. Our catalpas are from finest strain of Nebraska-grown seed.

Forest Nursery and Seed Co., McMinnville, Tenn.

### EAR SEED-CORN!

Four of the best varieties for sale. Tested, and guaranteed to show good germination, or your money back. Thirty choice ears for 75c or one bushel in crates for \$1.75. Same price for graded if wanted. If you want good ear seed corn write before it is all sold.

Yenn Brothers, Riverside, Iowa.

## 450,000 TREES

200 varieties. Also Grapes, Small Fruits etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. Lewis Roesch, Fredonia, N. Y.



## Special Notices

### By Our Business Manager

Elsewhere in the department of Pickings, in this issue, is a translation from *L'Apiculteur*, wherein it is stated that the United States government appropriates annually \$50,000 for apiculture. This is an error. The actual amount is only \$8000.

#### MAPLE PRODUCTS.

The weather is proving to be favorable for the production of maple sugar and syrup, and we hope to have soon a plentiful supply. We have been filling orders for syrup, but little sugar has been offered us as yet this season. Price for syrup, \$1.20 per gallon; 6 gallons or over at \$1.10; maple sugar at 12 cents per lb. in 10-lb. lots or more.

#### SWEET-CLOVER SEED.

We have secured several lots of white sweet-clover seed unhulled, much of which we have used in filling accumulated orders. We now have a limited quantity to offer at the following price till further notice: Per lb., postpaid, 23 cts.; not prepaid, 14 cts.; 10 lbs., \$1.20; 25 lbs. or more, at 10 cts. per lb. All kinds of clover seed seem to be scarce, and high in price this spring. For other clovers we refer you to The Wood Co., of Medina, O.

#### HANDY NAILING-BLOCK.

If you have ever tried nailing up hives, frames, or other fixtures on a heavy block of iron you will appreciate its advantage over a wooden bench. We have made a supply of blocks 21x3x1½ inches, weighing about 20 lbs. each, planed true on one side, which we can offer at \$1.00 each. A large slab, 16x24, would be worth \$5.00. The small block can be let into a slot in your bench, and you will find it a great advantage.

#### PRICES ON SUPPLIES.

The time for early-order discounts is past, and net catalog prices will rule for the present. As to how long they can remain where they are is a question. We are paying as much for beeswax as we paid any time last season, and more than we were paying as early in the season, notwithstanding the price of foundation is 2 cts.

a pound lower than it was last year. If price of wax advances much more we shall be compelled to raise the price of foundation.

Fine lumber has made phenomenal advances in the past few months. Some kinds of southern pines have doubled in price, while the lower grades of white pine have gone up already from 25 to 50 per cent, with the prospect of further advances. Those who have to pay present market prices for a supply needed this season will find their margin of profit pretty well wiped out. On top of this advance another dilemma stares us in the face. The grade of lumber which we have used for years in cutting into hives is one for which there has been a very limited general demand; and, considering the small waste in our short cutting, we have been able to buy it much below its real value compared with the same product cut from higher grades which would produce no better hives, and very few more of them, with some less care in cutting up to avoid waste.

The mills are discovering that they can work up this lumber into other uses which bring larger returns, and are making but very little of this grade compared with what they have made heretofore. What the outcome will be is hard to see at present, but it looks very much like still higher prices for hives if we continue using white pine. We have enough on hand and engaged to keep us going till next fall or winter without any change in price or lowering of the quality. We may find before another season that it will be necessary to make two grades at different prices—a high grade of clear lumber for those who are willing to pay for such, and a lower grade for those who can not afford the higher price, and can put up with a poorer grade of material.

#### ANNOUNCEMENT.

In the April 15th number of *GLEANINGS* we expect to begin a series of articles on "Bee-keeping in the United States." These articles will cover all of the leading bee States, arranged as nearly as possible in the order of their honey seasons. Thus, Alabama, where the season will be in full swing by middle April, will come first.

The following points will be discussed in each article: "Sources of honey, or honey-plants;" "Leading honey-producers, names and photographs;" "Extent to which bees are kept;" "Honey production; value and amount of crop;" "Wax production;" "Queen-breeders, names and photos;" "Markets. What becomes of the honey raised in Alabama? Leading home and export markets."

We will try to announce each time just which State is to be discussed next. Our very best efforts will be given to make these articles as interesting and as complete and accurate as can possibly be done.

We should like to get our April 15th number into the hands of as many Alabama bee-keepers and farmers as possible. We should appreciate your assistance. Will you not kindly send the names of any of your Alabama friends to whom you would like to have us mail a copy, free of charge, of course? We shall appreciate the favor, and no doubt your friends will be very glad to read about this great industry in their own State. Send lists of names to Circulation Department *GLEANINGS* IN BEE CULTURE, Medina, Ohio.



No. 80 Iron Age  
Pivot Wheel  
Riding  
Cultivator

## KEEP AHEAD OF THE WEEDS

Poor crop weather seems to be the best kind of weather for weeds. The user of Iron Age Implements has the advantage in any kind of weather because he can get over his crop oftener, cultivate it better and kill the most weeds with the least amount of labor. Two of the famous

# IRON AGE

## IMPLEMENTS



No. 1  
Iron Age  
Double  
and Single  
Wheel Hoe

are shown. They are weed killers, crop makers and labor savers. The No. 1 Wheel Hoe with its attachments enables one man to accomplish more and better work than three men by any other method. The No. 80 Riding Cultivator is wonderful for its adaptability to

varying work and conditions. Send for the **New Iron Age Book** which describes the full line of Iron Age Seeders, Wheel Hoes, Cultivators, Horse Hoes, Fertilizer Distributors, and a full line of Potato Machinery consisting of Planters, Sprayers, Cultivators, Diggers. Free on application.

**BATEMAN MFG. CO., Box 120, Glenloch, N. J.**

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

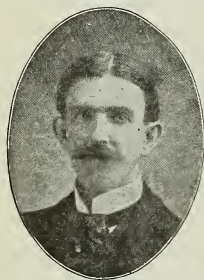
# BEE-KEEPERS' SUPPLIES

Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers, Bee-veils, Pouder Honey-jars, and, in fact,

**EVERYTHING USED BY BEE-KEEPERS.**

Headquarters for the Danzenbaker Hive.



## New Metal-spaced Hoffman Frames are Here in Stock

### Conversation with Wilson

"Good evening, Mr. Wilson. Come in and have a chair. I haven't seen you since you sent to Pouder for those supplies. Have they arrived yet?"

"Yes, they came long ago, and we have them all put together and painted. Bob put most of them together. You see Bob has been making fun of Mandy and me for having the bee-fever; but since Pouder sent those supplies he has the fever as bad as any of us. I heard him ask his ma when she was going to have a quilting-bee, and he wants me to have a husking-bee. Those supplies surely are fine, and how nice every thing did fit! Well, Mr. Smith, I hear you have been over to Indianapolis, and I came over to ask if you saw Pouder, and if you had a talk with him about spring feeding."

"Yes, I had quite a visit with Pouder. He is certainly well equipped to handle a lot of business. We had a long talk about spring

feeding and several other subjects. I was a little surprised when he told me that he is opposed to spring feeding unless colonies have been neglected in the fall. If they have been neglected they must, of course, be fed; but they should have candy, no feeder being satisfactory in cool or cold weather. Pouder thinks that all feeding should be done in the fall and there is no danger of overfeeding. He says that, while others are worried about their bees starving in February or March, he rests easy, knowing that his have an abundance; says he thinks spring feeding often starts spring dwindling, and it sounds pretty reasonable to me."

"How about feeding in the spring just to encourage brood-rearing?"

"Well, we were talking about that too. He says that, when they have an abundance of stores, and are left alone, such colonies build up faster for him than those trifled with."

### BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight; always be sure to attach name to package.

CATALOG FREE

## WALTER S. POUDER,

513--515 Massachusetts Ave.,

INDIANAPOLIS, IND.



# Bee = keepers!

Are you aware that we are manufacturers, and can supply you with every thing you need in the apiary?

## Good Goods, Low Prices and Prompt Shipments

are the POINTS in our favor. Our customers say so. Convince yourself by sending us your order. Ask for our free Illustrated Catalog and Price List.

Page & Lyon Mfg. Co., New London, Wis.

### **Montana, Minnesota, Dakota, and Western Wisconsin Bee-keepers!**

You can save freight by ordering of the St. Paul Branch. We have a complete stock of bee-keepers' supplies. Write at once for catalog and obtain our early-order discounts.

**BEES AND QUEENS**—Orders booked now for spring delivery.

**HONEY AND WAX**—We handle honey and wax. Write for particulars.

#### **The A. I. Root Co.**

Northwestern Branch,  
1024 Mississippi Street,

J. C. Acklin, Mgr., **St. Paul, Minn.**

### Do you want Results?

The Best Results will  
be Obtained by Using

## **Dittmer's Foundation**

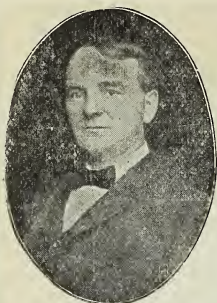
Now is the time to get your bee-supplies and make them up for the coming season. We make a specialty of working beeswax for cash.

Beeswax always wanted. A postal card will bring you our catalog, which also contains valuable information for beginners.

**Retail - Wholesale - Jobbing**

Our warehouse is well stocked with bee-supplies of all kinds.

**Gus Dittmer, Augusta, Wis.**



H. M. ARND, MANAGER

# YORK HONEY AND BEE SUPPLY CO. Not Inc.

141 ONTARIO STREET : CHICAGO, ILLINOIS

CARRY A FULL LINE OF

## Lewis Bee-supplies and Cornell Incubators and Brooders

and poultry-supplies at factory prices. Write for the 1906 catalog of either or both. Honey for sale. Beeswax wanted; 28 cts. cash, or 30 cts. when taking bee-supplies in exchange. Early-order discount, two per cent for March.



## Michigan Distributors

—FOR—

### G. B. Lewis Co.'s Beeware, Dadant's Foundation.

With an enormous stock, and the best shipping-point in Michigan, we are in a position to give you the very best service. Regular discounts allowed.

**SPECIAL.** A quantity of Dovetail and Wisconsin hives, slightly discolored by water, in packages of five at \$1.25 per hive for 1½-story 8 frame; 10-frame, \$1.40 per hive. Satisfaction guaranteed.

**ADVANCED BEE-VEIL.** Cord arrangement, absolutely bee-proof, best on earth. Made of imported French tulle veiling. Cotton, with silk face. **50 CENTS, POSTPAID.**

### A. G. Woodman Co.,

Beeswax Wanted.

Grand Rapids, Mich.

## Southern Bee-keepers !

If you want bee-keepers' supplies of best quality and for the least money possible, you should buy them from the **WHITE MANUFACTURING COMPANY**. Situated, as we are, right near the great pine belt of North Texas, Louisiana, Arkansas, and Indian Territory, we can secure the best material possible at least cost, thus enabling us to give entire satisfaction. Catalog and price list free.

**White Manufacturing Co.** - **Blossom, Lamar Co., Texas**

## BEE - SUPPLIES

Distributing-house for Lewis' Goods,  
Dadant's Comb Foundation, etc., at  
Factory Prices.

Every thing the bee-keepers need. No order too large for us, nor none too small. Cash orders before February, 6 per cent discount.

### FINE EXTRACTED HONEY ✕ ✕ ✕

The best the world can produce. Sample sent, 8 cents. How much can you use? *We always buy beeswax.* Catalog and "Special" free.

### C. M. SCOTT & CO.

1004 E. Washington St.

Indianapolis : Indiana

## Our Specialties

Cary Simplicity Hives and Supers,  
Root and Danz. Hives and Supers;  
Root's Sections, Weed Process Foundation,  
and Bingham Smokers.

*Bees and Queens in their Season.*

*32-page Catalog Free.*

**W. W. Cary & Son,**  
Lyonsville, Mass.



# BEE-SUPPLIES

We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at **LOWEST PRICES**, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. **SPECIAL DISCOUNTS** now. Write to-day. Address

## Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.  
Trester Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.  
T. B. Vallette & Son, Salina, Kansas.

**BINGHAM**  
Original  
Direct Draft  
CLEAN  
Bee Smokers



Pat'd 1874, '82, '92 & 1903

## Pretty Recognition

A lady to whom I sent a Smoke Engine to order per mail sent this delicate recognition, "I am pleased," and signed her name.

We have made hundreds of thousands of smokers in the last twenty-eight years. They always please and *last*; don't spit fire; don't go out; don't *daub* themselves all over. We are the most extensive *exclusively* bee-smoker makers in the world.

**T. F. Bingham**

**Farwell, Mich.**

Chico, California, October 28th, 1905.  
Dear Mr. Bingham:—Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.  
J. M. RANKIN.

## A Prosperous

Season is yours.....

if you take time by the forelock, and be prepared for the season when it comes. **DON'T** put off ordering your supplies until you need them. Order now, and get the discounts.

I have a full line of Root's Goods, and sell them at factory prices and discounts. Send me a bill of what you want and let me tell you what I will deliver them at your depot for. Send for my 36-page catalog—it will be sent free—also a full description of the Hilton Chaff Hive and Supers, with a comparison made by the Michigan State Agricultural College between the single and double walled hives. All free for the asking. Cash, or goods in exchange for wax.

**Geo. E. Hilton, Fremont, Mich.**

## WISCONSIN BASSWOOD FOR SECTIONS

We make them and the very best of Dovetailed Hives, Shipping-cases, and a full line of Bee-keepers' Supplies always on hand. We make very prompt shipments. Let us hear from you.

**Marshfield Mfg. Company**  
Marshfield, Wisconsin

## The Quality of Bee Supplies

OUR Bee-supplies are made from the best material, by the most skilled labor. We give an article of superior merit at a great reduction in price. We can do this because we are located in the heart of the lumber district and get our power from the well-known Falls of St. Anthony. Our catalog is a valuable book as it is full of information for the bee-keeper not usually found in a catalog. Write for it to-day.

**Minnesota Bee Supply Co.,**  
**20 Power Building, Minneapolis, Minn.**



### Everything for the Bee Keeper

will be found in our Illustrated Catalogue No. 40. It contains a full line of Hives, Supers, Followers, Sections, Section Holders, Frames, Extractors, Smokers, etc. All these and many other essentials are manufactured by us. Everything is guaranteed to be right and of best quality. Our prices are so reasonable that any bee keeper may afford the best supplies. We cannot tell you here of all the good things in this book.

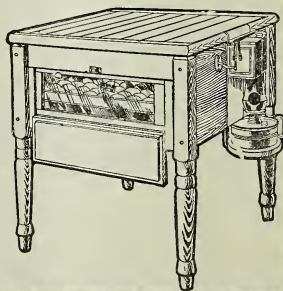
Better send for a copy today. We mail it free, together with a copy of the **Progressive Bee Keeper**, a splendid monthly publication devoted to bee interests. It will help you start right and keep you right after you are started. It is invaluable as an aid to every bee keeper. Ask for the paper and the book.

#### We Sell the Best Incubators and Brooders.

Delivered at your station, prices the lowest. Write us at once and save money. Address

**LEAHY MFG. CO., 15 Talmage St., Higginsville, Mo.**

Branches at Omaha, Neb. and East St. Louis, Ill.



### Bees, Queens, and Bee Supplies.

We manufacture standard dovetailed bee-hives and supplies cheaper than you ever bought before. Our queens and bees stand at the head in quality. Untested, 75c each; \$4.25 for 6, or \$8.00 per dozen. Tested, \$1.25 each; \$12.00 per dozen. Select tested, \$1.50 each. Special prices to dealers in large lots on application. State agents for Dittmer's foundation. Catalog free.

**THE BEE AND HONEY CO.,**

Will Atchley, Prop., Beeville, Bee Co., Texas.

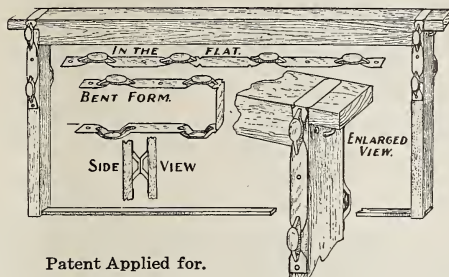
### If You Want Root's Goods

I have them at Root's prices. Also A B C of Bee Culture—one of the best books printed on bees. Catalog free. Address as below. . . . .

**D. Cooley, Kendall, Michigan**



# Metal-spaced Hoffman Frame IN GREAT DEMAND.



Patent Applied for.

*Has come to stay. Can be used interchangeably with regular Hoffman frames. Has all the advantages of the regular Hoffman. Is not affected by propolis. Can be handled without pry or screwdriver. Has no rights or lefts, and, therefore, can not be put up wrong. See full description in 1906 GLEANINGS, page 16.*

**PRICES.**—Metal-spaced Hoffman frames—100, put up, \$4.50. In flat—10, 35c; 100, \$3.00; 500, \$14.00. Metal spacers only—30c per 100; \$2.50 per 1000. Hives with metal-spaced frames, 5c extra each body, 8 or 10 frame, put up or in the flat.

**The A. I. Root, Company, Medina, Ohio.**

## CLASSICS FOR A SONG!

Hundreds of the world's best at 1c to 15c. List free. "Bargains in Worth While Books." Big catalog free. Any book supplied. Lowest prices anywhere.

**Where is It?** Unique index to everything—3 and 10c. **Library of Universal Literature.** All times; all languages. The best—one-fourth the cost of others.

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**The Ideal Cyclopedia.** One of the largest, latest, and best for use at any price, at one-third cost of any rival. **ALDEN BROTHERS, Pubs., 405 Bible House, N. Y.**

## Convention Notices.

THE ANNUAL CONVENTION OF THE NORTHERN MICHIGAN BEE-KEEPERS' ASSOCIATION WILL BE HELD AT KALKASKA, MICH., WEDNESDAY AND THURSDAY, APRIL 4 AND 5, 1906.

Morning, afternoon, and evening session in Court-house.

The following prizes are offered: Class A.—Best 10 lbs. red-raspberry comb honey. First prize—Observatory hive, by A. I. Root Co. Second prize—One year's subscription to *American Bee Journal*, by Geo. W. York.

Class B.—Best 10 lbs. comb honey, any variety. First prize—500 No 1 Lewis sections, by A. G. Woodman. Second prize—One year's subscription to *Bee-keepers' Review*, by W. Z. Hutchinson.

Class C.—Best 10 lbs. extracted red-raspberry honey. First prize—500 No. 1 Lewis sections, by A. G. Woodman. Second prize—One year's subscription to *Bee-keepers' Review*, by W. Z. Hutchinson.

Class D.—Best 10 lbs. extracted honey, any variety.

First prize—One year's subscription to *American Bee Journal*, by Geo. W. York. Second prize—One tested queen, delivered in July, by Geo. H. Kirkpatrick.

Class E.—Best single section of honey. First prize—One Standard Cornell smoker, by E. M. Hunt.

Class F.—Best 10 lbs. beeswax. First prize—One Bingham smoke engine, by A. G. Woodman.

Appearance, quality, and condition for market to be considered in the above.

We will have a selection of the A. I. Root Co.'s lantern-slides, and show you some interesting pictures. We expect Geo. W. York and W. Z. Hutchinson to be present, and also a goodly number of prominent bee keepers from various parts of the State. W. Z. Hutchinson, Flint; E. D. Townsend, Remus; Geo. H. Kirkpatrick, Kalkaska, will read papers on interesting topics.

Special rates given at the Manning House. We are going to have a good time, and we invite you to be there.

IRA. D. BARTLETT, Sec.

THE FIFTEENTH ANNUAL MEETING OF THE CONNECTICUT BEE-KEEPERS' ASSOCIATION WILL BE HELD IN THE CAPITOL, HARTFORD, ROOM 50, WEDNESDAY, APRIL 11, 1906, 10:30 A.M.

All bee-keepers should make an extra effort to attend this meeting. Try to bring a friend also.

Topics for discussion: 1. The best method for putting starters in sections; 2. Your best way to prevent swarming; 3. Swarming devices, pro and con; 4. Large and small hives compared; 5. What is the best way to increase? 6. Best use to make of second swarms; 7. How did your bees winter? How many colonies have you? 8. What do you do with sections after removing them from the hive? 9. Handling the divisible brood-chamber; viz., single frames; 10. How do you manage the old colony after the first swarm has left? 11. How do you ripen or thicken extracted honey? 12. Can new combs be made out of old ones by cutting them to one-half inch thick or less, and would they be good as new ones?

Please bring something for the exhibition-table, or a question for the question-box.

MRS. E. E. SMITH, Sec.

## Every Bee - Keeper Knows the Worth of a Good Queen

Knows the worth of a good strain of bees, and also knows how worthless is a poor queen and inferior bees. Try our strain of three-banded Italians. They are bred for business, and will not disappoint you. Home-bred and imported mothers. Tested, \$1.00 each; untested, 75 cts. each; \$8.00 per dozen. Send for price list.

**J. W. K. SHAW & CO.**

Loreauville, : : : Louisiana

## Tennessee-bred Queens

From Extra Select Mothers

Three-band from dark leather imported; Moore's long tongue or my own; Golden from Laws, Doolittle's, or my own; Caucasians and Carniolans from direct imported. No disease. Contracts with dealers a specialty. Apiaries from 3¼ to 7 miles apart. Write name on postal, and get circular and what others say.

**JOHN M. DAVIS**

Spring Hill, Tennessee, U. S. A.

## REAR YOUR OWN QUEENS

If you desire to rear queens by a natural, practical method, send for a copy of my book, "IMPROVED QUEEN-REARING." The outfit will cost you little or nothing, and the book will tell you how to prepare all that is needed. Price, by mail, 50c per copy. Address Henry Alley, - - Wenham, Mass.

## California Sage Queens

For the coming season I am breeding choice Italian queens from best honey-gathering strains of bees that are hustlers. No disease of any kind has ever been in or near my apiary. Prices: Choice untested, \$1.00; six, \$5.00; dozen, \$9.00. Tested, \$1.50; six, \$8.00. No small or inferior queens sent out.

**J. W. GRIFFIN**

528 Gladys Av., Los Angeles, Cal.

## TAYLOR'S ITALIAN QUEENS FOR 1906

Leather-colored and golden Italians. I have made it a specialty for 18 years to breed for the best honey-gatherers of these races, and I have not been able to get any other stock that will store as much honey as my strains, gentle and beauties. Untested, 75 cts. each; \$3.00 per dozen. Tested, \$1.00, or \$11.00 a dozen. Select tested, \$1.50. Breeders, \$3.00 to \$5.00 each. I guarantee safe arrival on all queens. Untested Caucasians, queens, \$1.00 each. Send your orders to

♥ ♥ **J. W. Taylor, Beeville, Texas**

## QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—"Whatsoever ye would that men should do to you, do ye even so to them."

MALAN BROTHERS, Luserna, San Giovanni, Italy.

## COLLINGDALE APIARY

J. R. Rambo, Collingdale, Delaware Co., Penn.

Breeder of Caucasian and Golden Italian queens; Italians bred from stock received from Swarthmore; Caucasians bred from an imported queen. Queens reared and mated in separate yards, six miles apart. Satisfaction and safe arrival guaranteed. Prices furnished on application. I am booking orders now for the coming season, and will fill same in rotation as received.

## Quality Queens

Are the Best Italians yet.

Send for circular. ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥ ♥

**H. H. JEPSON,**

182 Friend St., - Boston, Mass.

## GOLDEN ITALIAN QUEENS

For season of 1906. Same old stock.

Write for circular, prices, etc.

**J. B. CASE, Port Orange, Fla.**

1906 Italian and Caucasian Queens. Price list now ready. Write **E. E. LAWRENCE, Doniphan, Mo.**

**PRICES for Maturing Brood this Season** will be same as in 1904, when I practically sold out my apiary. Will furnish queens at equally low prices, untested or tested, during May and June. Brood-combs wired; in nuclei or in bulk, to reinforce weak colonies.

**B. F. AVERILL, Howardsville, Va.**

# I. J. STRINGHAM

OF 105 PARK PLACE

# New York

furnishes every thing a bee-keeper uses. Strong colony of bees, with tested Italian queen, in Dev'd hive complete, \$8.75; in a chaff hive, \$9.50. Three-frame nucleus, with Italian queen, \$4.25. Silk-faced bee-veil, 40 cts. postpaid. Italian queens, \$1.00. Catalog of bee-supplies free.

Apiaries, Glen Cove, Long Island.

**A. H. Reeves, Perch River, Jefferson Co., N. Y.**

DISTRIBUTOR OF ROOT'S GOODS FOR

## NORTHERN NEW YORK

BEE SWAX WANTED

**If You Want the Bee-book**

that "covers the whole apicultural field more completely than any other published," send \$1.20 to ::

**Prof. A. J. Cook, Claremont, Calif.**

— FOR HIS —

## "Bee-keepers' Guide"

Liberal Discount to the Trade.



# CARNIOLANS OUR SPECIALTY

WE HAVE bred this race of bees for twenty years, and find they are among the gentlest bees known. Very hardy and prolific, and the best of honey-gatherers, and their combs are of snowy whiteness. We are wintering fifty select imported and two hundred best select tested Carniolan queens for early orders. Also breeders of Golden and Leather Italians. One untested queen, \$1.00; six for \$5.00; twelve for \$9.00. Tested, \$1.50. Best breeder, \$3.00. Best imported, \$5.00. Special prices on large orders. No foul brood here. Bees and queens guaranteed to arrive in good condition in U. S. or Canada. Descriptive list free.

**F. A. Lockhart & Co., Lake George, New York**

F. A. Lockhart & Co.—Last Friday I was in the New York office of The A. I Root Co., and saw a three-frame nucleus of Carniolan bees with queen, which they had just received from you. They were the finest Carniolans I ever saw, entirely free from any trace of yellow markings, and I at once bought them, though the Root people were not very anxious to sell them. I am writing you to-day to ask if you can ship me at once a three-frame nucleus of Carniolans with plenty of drone brood. Send by express to me at Columbia University.

J. H. MCGREGOR.  
Department of Zoology, Columbia University,  
June 17, 1905. New York.

## SWARTHMORE

HAS made arrangements to import Select Caucasian Breeding Queens from their native land in Russia, to be mailed direct to customers in sealed cages (which assures them genuine), \$10.00 each in May; \$8.00 in June. Safe arrival guaranteed. Italian, Carniolan, Banat, Cyprian, German Black, and the "funny little bees" from Japan, also direct to customers from their native lands. Home-bred Golden-all-over Queens as usual. Send for circulars.

1000 Nuclei E. L. PRATT, SWARTHMORE, PENN. Four Mating-yards

## Italian and Caucasian Queens and Bees



Choice homebred and imported stock. All queens reared in full colonies.

### PRICES FOR APRIL ITALIANS

One tested queen .....\$1.65  
One select tested..... 2.20  
One breeder queen..... 3.30  
One comb nucleus, no queen... 1.50

Untested queens in May. Safe arrival guaranteed. For prices on quantities, and description of each grade, send for free catalog.

J. L. Strong, Clarinda, Iowa, U. S. A.  
204 East Logan Street

## A Poor Excuse

is said to be better than none, but when you get an

### EXTRA HONEY QUEEN

you get a queen that does not need an excuse. They are the best it is possible to produce. Satisfaction, or your money refunded. From this location we can fill early orders.

#### Prices

One.....\$1.00 Six .....\$5.00 Twelve ..\$9.00

**Francis J. Colahan**  
**Bernardo, San Diego Co., Calif.**

## Do You Want to Improve Your Stock?

Are your bees cross? Do they make a good surplus? Do you want a nice queen—one that will please? If so, write for circular  
A. W. Yates 3 Chapman St., Hartford, Connecticut

## DOOLITTLE & CLARK

are booking orders for their famous Italian queens. Now is the time to order breeders. Send for circular.

| Grade.                      | One    | Three  | Twelve |
|-----------------------------|--------|--------|--------|
| Untested .....              | \$1.00 | \$2.50 | \$9.00 |
| Select Tested.....          | 1.50   | 4.00   | 14.00  |
| Tested (1905 rearing).....  | 2.50   |        |        |
| Select Breeding.....        | 5.00   |        |        |
| Extra Select Breeding ..... | 10.00  |        |        |
| Two-frame Nuclei .....      | 2.50   | 7.00   | 25.00  |

**DOOLITTLE & CLARK**  
Borodino, Onondaga Co., New York

## Rose Lawn Queens

### Italians Caucasians Carniolans

Bred in the purple. No finer on earth. Try one of our pure Gold strain, line bred for color and gentleness. Three banders of the "pat-'em-on-the-back" kind that will eat out of your hand. Caucasians from imported breeders direct from the Caucasus. Separate mating yards. A strictly modern plant. Standard prices and honest treatment. Ask for our catalog.

## Rose Lawn Apiary, Lincoln, Nebraska

Frank G. Odell, Proprietor

## Now Ready, Italian and Red-Clover Queens

I guarantee safe arrival and perfect satisfaction. Untested, 60 cts.; select untested, 75 cts., or \$3.00 per dozen. Tested, \$1.00, or \$10.00 per dozen. Breeders, \$1.50 each.

**R. O. COX,**  
**Rt. 4. Greenville. Ala.**

## TRY ONE OF MY \$100 RED CLOVER BREEDER'S DAUGHTERS.

After May 1st, untested, 50c; 13 for \$6.00. Select untested, 75c; 13 for \$9.00; tested, \$1.00; 13 for \$12.00; select tested, \$1.50 each. Breeders, \$2.50 each. Extra select breeders, \$3.00 each. Nuclei, \$1.75 per frame with-out queen.  
**H. A. ROSS,**  
1709 UPPER 2D ST., EVANSVILLE, IND.

## Now is the Time to Plan

for the coming season, and you are bound to need queens to replace those that are old and worn out. Many of my customers have written me that the queens bought of me were the only ones that gave any surplus the past poor season. You had better plan to supply yourself with a lot of those fine young queens from the Laws apiaries, and double your crop of honey.

### I AM BREEDING THE LEATHER AND GOLDEN ITALIANS,

also the Holy Lands. So many calls have come for Carniolans that I have added this splendid race to my list, and there is no doubt that the Carniolan, or the Carni-Italian cross, will cap their honey whiter than any of the Eastern races. I am not only prepared to furnish you with the best bees and queens in existence, but in any quantities, large or small, from one to a thousand queens. Nuclei and full colonies in season. I also offer another car of bees the coming season.

**PRICES:** Queens, each, \$1.00; six for \$5.00. Breeders, each, \$3.00. Write for quantity lots.

**W. H. LAWS, BEEVILLE, BEE CO., TEXAS.**

## Caucasian - and - Italian - Queens

from California

Prices: CAUCASIAN—One tested, \$3.00; one best breeding, \$6.00; one imported from Caucasus, \$7.00. ITALIAN—One untested, \$1.00. six for \$5.50, 12 for \$10.00; one tested, \$1.50; one best breeding, \$5.00. Caucasians bred from the best imported breeding queens. Italians bred from breeding queens we procure from principal breeders of this country who have the best honey-gatherers. Nuclei and full colonies of bees. Send for particulars, and see our adv. in GLEANINGS, February 1st.

**A. E. Titoff, Ioamosa, San Bernardino Co., California**

## CAUCASIAN QUEENS!

For beginners, the timid, and the city bee-keeper Not stingless, but gentle. With this race many will master the art of handling bees. I breed HIGH-GRADE ITALIAN QUEENS also. The demand for these queens is great; the supply is limited. Write for particulars today. Address

**Robert B. McCain, Yorkville, Ills. R. F. D.**

## Our Queens Won't Cost You Money!

**They Will Save It!**

They are bred from pure Italian stock, red-clover strain; hardy Northern grown. Prompt shipments at these prices:

Untested.....\$1.00; \$5.00 for six

Select tested..... 1.50; \$7.50 for six

For prices in larger numbers and breeders write us.

Orders for delivery after May 15th now being booked.

Get your order in early.

Handsome booklet mailed free upon request.

**B. C. Terry Co., Hinsdale, Ill.**

## Superior Stock

I make a specialty of long-tongue  
Italian, Carniolan, and Caucasian,

Rearing only from best stock obtainable. My Italian queens are unexcelled; my Carniolans and Caucasians from best imported queens. All races bred in separate yards to insure purity. A postal will bring my price list for 1906.

**CHARLES KOEPPEN**

Fredericksburg, Va.

## PURE ITALIAN BEES!

The most beautiful, gentle, prolific, best working, and being long-tongued, best honey-gatherers. **Prizes—** VI. Swiss Agricultural Exhibition, Berne, 1895; Swiss National Exhibition, Geneva, 1896; Bee-keeping Exposition, Liege, Belgium, 1895; Universal Exposition, St. Louis, U. S. A., 1904. **The Highest Award.** Extra select breeding Queen, \$3.00; six, \$16.00; dozen, \$30.00. Selected Queen, \$2.00; six, \$11.00; dozen, \$20.00. Young fertilized queen, tested, \$1.50; six, \$9.00; dozen, \$16.00. Special prices for 50 and 100 queens. The addresses must be clear; payments by postal money orders. If by chance a queen dies upon the journey she is to be returned immediately, with a postal certificate, and another queen will be sent gratis. Address

**Anthony Biaggi,**

Pedeville, near Bellinzona, Italian Switzerland. This country is politically the Switzerland Republic, but lies geographically in Italy, and possesses the best kind of bees known. Bee-keepers of the *Far West* can give their orders to my brother Stefano (Stephen) Biaggi, farmer, resident at Wash, Plumas Co., California, who will kindly collect orders. In writing, mention GLEANINGS.

## Pure Caucasian Queens!

Bred in their purity, at the foot of the glaciers, 1½ miles high, by "Etablissement d'Apiculture Mont Jovet, Albertville, Savoie, France, official breeder for U. S. Government." We supply, too, imported Caucasian queens. Safe arrival guaranteed. Select untested queen, \$2.00; six, \$11.00; twelve, \$20.00. Select tested queen, \$2.50; six, \$14.00; twelve, \$25.00. Full rates on application. English correspondence.

## QUEENS.

Italian, Carniolan, and Carni-Italian Cross.

Can supply select untested queens at 75c each; three for \$2.00; six for \$3.50. I am now booking orders for early delivery.

**George W. Barnes,**

138N. Pleasant St.

**Norwalk, Ohio.**



# BEES and QUEENS

## The Three-banded Long-tongued Strain of Italians.

"We are breeding exclusively the above strain of bees, as from years of experience we consider them the best all-round bees that can be had. We have been making, from time to time, very careful selections for the following

### Superior Qualities.

✓ Honey-gathering, size of bees, non-swarmling, docility, uniform markings.

Our selection of bees awarded diploma at the PAN-AMERICAN EXPOSITION for being the best bees there. And we guarantee them the equal of any bees anywhere at any price.

### Quality Our Motto.

1300 colonies to select from.

Untested queens.....\$1.00; 6, \$5.00; 12, \$ 9.00  
Select untested queens..... 1.25; 6, 6.00; 12, 11.00  
Tested queens..... 1.50; 6, 8.00; 12, 15.00  
Select tested queens..... 2.00; 6, 11.00.  
Breeding queens, \$3.00 to \$5.00.

Yours for best service,

**The Victor-Knolle Apiary Co.,**  
Hondo, Texas.

## Red-clover Queens from Westwood Apiary

will convince you of their superiority over all others. One, two, and three frame nuclei a specialty; also full colonies. Price list sent on application.

Henry Shaffer . . . . . Westwood, Ohio

## MOORE'S LONG-TONGUES and GOLDENS

Select untested queens, \$1.00; six, \$5.00; twelve, \$9.00. Tested, \$1.50; six, \$8.00. Best breeders, \$3.50. Safe arrival guaranteed.

**W. H. Rails,** - - - Orange, Calif.

**H. C. Simpson, Catawba, S. C.**

Dealer in

## BEE - KEEPERS' SUPPLIES!

Breeder of Italian bees and queens.  
Root's Goods a specialty.

## ITALIAN QUEENS and GLEANINGS.

For \$1.10 I will send GLEANINGS one year, new or renewal, and give one of my choice untested Red-clover Queens. Queens sent after May 1st.

**W. T. CRAWFORD, Hinston, La.**

**IMPORTED - CAUCASIAN - QUEENS** are the mothers of my stock. Prices: Tested queens, \$3.00; untested, \$1.50; red-clover Italians, Carniolans, and Carnio-Italians bred from best stock obtainable. Prices: Tested queens, each \$1.50; warranted, each \$1.00; untested, 6 for \$5.00; untested, 12 for \$9.00. After May 15, by return mail. Satisfaction guaranteed

Rev. J. G. Baumgaertner, New Memphis, Ill.

## CARNIOLAN and ITALIAN QUEENS!

Ready to mail by April 15th. Quality of the highest, prices the lowest. Write me.

**Grant Anderson** - Salina, Texas

# Aliso Apiary

For queens, bees, nuclei, supplies, etc., send for price list. Root's standard goods. Address

**ALISO APIARY, El Toro, Orange Co., Calif.**

## From Long-tongued Imported Italians.

Trial queen, 60c; only one at this price. Untested, 75c; \$7.50 per doz. Tested, \$1.25; \$12.00 per doz. Breeders, \$2.00 to \$3.00. Send for particulars.

**E. E. MOTT, Glenwood, Mich.**

## Boston Headquarters — FOR — Bees-Queens-Supplies

**H. H. Jepson** - 182 Friend St.

## Italian Queens of - the - Purest - Strains

I offer this race of queens, bred from select red-clover and five-banded breeders, at the following prices:

Untested, 75c; select untested, \$1.00; tested, \$1.50; select tested, \$2.50. I will guarantee safe arrival and satisfaction.

## H. M. PARKER, Jr.

**James Island, South Carolina**

## Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$3.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

**The JENNIE ATCHLEY CO.,**

Box 18, Beeville, Bee Co., Tex.

**Queens!** Select three or five banded, \$1.00; tested three or five banded, \$1.25. Ready for delivery April 1st. Write for circular. Daniel Wurth, 1111 No. Smith Street, San Antonio, Texas

## Italian and Caucasian Queens

**ITALIANS.**—Golden or leather-colored or honey queens. Before July 1st: Untested, \$1.00 each; 6 for \$5.00; 12 for \$9.00. Warranted, \$1.25 each; 6 for \$7.00; 12 for \$13.00. Tested, \$1.50 each.

**CAUCASIANS.**—Untested, \$1.20 each; 6 for \$7.00; 12 for \$11.00. Warranted tested, \$1.50 each.

**TWO-FRAME NUCLEI.**—No queens, \$2.50; 6 for \$14.00; 12 for \$27.00. Add price of any queen wanted. Nuclei ready by June 1st. Queens ready in May. Breeders from \$5.00 to \$10.00. Book your order now. Safe arrival of all stock guaranteed.

**D. J. Blocher, Pearl City, Illinois**

## Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

**WANTED.**—Bee-men to write. C. W. WAUTEL, Folkston, Ga. Best location; two railroads.

**WANTED.**—To exchange a Winton automobile for bees or other offers. E. M. GRAVES, Wakeman, O.

**WANTED.**—Excluding-zincs, eight and ten frame, 2d-hand. JNO. H. KOONTZ, Stewardson, Ill.

**WANTED.**—To exchange typewriter for three-frame nuclei or queen bees to be delivered before May 10. WM. DAVENPORT, Wilmette, Ill.

**WANTED.**—To exchange a pair of pea-fowls for a pair of Angora pups, or something of equal value. MRS. M. M. GERBER, Route 6, Florence, Ala.

**WANTED.**—Good colonies of bees for cash. State price and quantity. F. H. FARMER, 15 Chardon St., Boston, Mass.

**WANTED.**—Bees on shares. Raise fancy and No. 1 comb honey only. Arrangement will make will please you; long experience; Christian preferred. M. LOVEJOY, 259 West 37th St., New York.

**WANTED.**—Refuse from the wax-extractor, or slumgum. State quantity and price. OREL L. HERSHISER, 301 Huntington Ave., Buffalo, N. Y.

**WANTED.**—Old books on bee culture, especially from foreign countries. Please state titles, authors, year of publication, edition, binding, condition, number of pages, and price wanted. A. L. BOYDEN, Medina, Ohio.

**WANTED.**—Italian bees in the South for early Northern trade. Prefer them from some point near the ocean routes. State what you have to offer, with full particulars. Want also about 200 untested Italian queens. Box 10, care of GLEANINGS, Medina, Ohio.

**WANTED.**—Every bee-keeper who takes GLEANINGS to send in the subscription of one or more friends. For three new subscriptions at \$1.00 each we will give a copy of the 1905 edition of A B C of Bee Culture. Sample copies to show your friends will be sent upon request. THE A. I. ROOT CO., Medina, Ohio.

**WANTED.**—Beeswax. We are paying 28 cts. cash or 30 cts. per pound in exchange for supplies for pure average wax delivered at Medina, or our branch houses at 144 East Erie St., Chicago, 44 Vesey St., New York city, and 10 Vine St., Philadelphia. Be sure to send bill of lading when you make the shipment, and advise us how much you send, net and gross weights. We can not use old comb at any price. THE A. I. ROOT COMPANY, Medina, Ohio.

**WANTED.**—To exchange 500 chaff hives, also Carniolan queens, for honey (hives in flat). Both are as good as can be produced. I have a good market for best quality of white-clover honey and a little buckwheat, but can not raise profitably. Will allow Chicago price for honey. No poor grades of honey wanted. W. W. CRIM, Pekin, Ind.

**WANTED.**—Bees to work on shares. I have as good a location, I think, as can be found in the States; two good flows in one season. My crop last year was 16,000 lbs. from 135 colonies. If your bees are not paying you, write me and I will work them for you and give you half the profits. I have a good cellar for wintering. Can move your bees successfully if you are at a distance. Can refer you to the banks here, any business house in town, or The A. I. Root Co. F. W. MANLEY, Sandusky, Mich.

## Help Wanted.

**WANTED.**—Nurses. The Western Pennsylvania Hospital and Eye and Ear Hospital offer exceptional advantages for training. References required. Apply Superintendent's Office, 1945 Fifth Av., Pittsburg, Pa.

**WANTED.**—Young man to help in large apiaries, and do some general work around home. Experience in bee-keeping not necessary. No one wanted who uses intoxicating liquor, tobacco, or profane language. J. A. GREEN, Grand Junction, Colo.

## Wanted, Situations.

**WANTED.**—Young man to take care of an apiary of 300 colonies, and carefully pack supplies for shipping. TRESTER SUPPLY CO., Lincoln, Neb.

## For Sale.

**FOR SALE.**—Pedigreed red Belgian hares. Write A. ZIEGLER, Bippus, Ind.

**FOR SALE.**—My entire bee-keepers' supply business. All inquiries answered. C. J. LAMB, East Calais, Vt.

**FOR SALE.**—25 colonies of bees in new eight and ten frame hives at \$3.50. W. D. SOPER, Jackson, Mich.

**FOR SALE.**—Good typewriter, also Water Spaniel dogs and pups. G. C. DEAN, New Milford, Pa.

**FOR SALE.**—Bee-keepers' supplies. Root's goods. Root's prices. Free catalog. F. R. DANIELS, 117 Florence St., Springfield, Mass.

**FOR SALE.**—Best land for bee-keepers, farmers, dairymen. Cheap. Write us. WRIGHT-ROBINSON, Cumberland, Wis.

**FOR SALE.**—Root's bee-supplies at factory prices: full colonies Italian bees; queens in season (catalog free); Plymouth Rock chickens and eggs; incubators, brooders, poultry food, etc. H. S. DUBY, St. Anne, Ill.

**FOR SALE.**—Cheap, a place of four acres in one of the best locations for bees in New York State. Have taken 300 lbs. of comb honey from one colony in a season. G. H. ADAMS, Box 976, Schenectady, N. Y.

**FOR SALE.**—Trees by mail; one-year-old peach and apple trees, 10c each; \$1.00 per dozen. Guaranteed true to name and free from disease. G. A. HAPER, Batchtown, Ill.

**FOR SALE.**—40 supers in flat, 4x4 plain sections, price \$10.00; thirteen 4x5 supers, nailed and painted, \$5.00; 1000 sections, 4x5 plain, \$2.50; 1000, 4x5, \$3.50. Write for particulars. J. E. BRANDON, Rt. 1, Montgomery, Ind.

**FOR SALE.**—Or exchange, old wooden-wheel clock, Mann bone-cutter, 12-foot steel wind-mill, 50-foot tower, shaft, pumping-jack, nearly new. E. K. MEREDITH, Batavia, Ill.

**FOR SALE.**—About 300 sixty-pound cans; mostly new, good condition, new cases, two cans to a case; 40 cts. per case, f. o. b. Preston. M. V. FACEY, Preston, Fillmore Co, Minn.

**FOR SALE.**—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to FRANK S. STEPHENS, (Root's Goods.) Paden City, W. Va.

**FOR SALE.**—Bees; the right kind, right prices. Safe arrival and satisfaction guaranteed. Ask for Illustrated Outfits for Beginners, price list, and our hints on buying bees. MASON SUPPLY CO., Mechanic Fs., Me.

**FOR SALE.**—Thoroughbred Italian bees and queens; no better in existence. Full colony bees, \$5.00; queens, untested, 65c; tested, \$1.00. Please write. F. M. MAYBERRY, Obelisk, Pa.



FOR SALE.—Fine garden property; three acres with buildings, 40 colonies of bees and supplies, 65 apple, pear, and plum trees, one acre of wheat, 40 grapevines; small fruits, hedges, ornamental trees. Price \$600; half down. MRS. JOHN H. THOMPSON, Woodstock, Ont.

FOR SALE.—100 colonies of pure Italian bees in eight or ten frame new Dovetailed hives with Hoffman frames; tested queen in each colony. Price \$6.00 each. In lots of ten, \$5.00 each.

F. A. GRAY, Redwood Falls, Minn.

FOR SALE.—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season.

W. N. CANNON, Greenville, Ala.

FOR SALE.—25 colonies of bees in 10-frame Simplicity and one-story chaff hives; also 75 empty hives and 150 supers with sections and foundation complete; also about 200 shipping-cases, carriers, etc. Will sell at a bargain because my health has failed.

G. P. KIME, Route 1, Isleta, Coshocton Co., Ohio.

FOR SALE.—Three untested Italian queens for \$1.00 after July 1, if ordered now; warranted pure mated, 10 cts. extra. Satisfaction, or money back. Only 300 at this rate. All you want as long as they last. Orders filled in rotation. Particulars free.

S. F. TREGO, Swedona, Ill.

FOR SALE.—Fine home in Glenwood, Wis.; one large house and two lots in the city, and two acres with large building 25x100 feet (very suitable for bee-supply factory), 150 colonies of bees all in good condition; one of the best white-clover and basswood localities for bee-keeping. Write for particulars.

J. GOBELI, Glenwood, Wis.

FOR SALE.—20 swarms of bees; 10 in Hilton's chaff hives (Hoffman frames), and 10 in single-walled hives in cellar now; queens pure Italians from Quirin. \$5.00 each is the price for the whole lot. Have also 40 hives (two-story), 100 frames of empty combs—clean and nice, 60 or more supers—part of them with comb half down, and a pile of material in flat. Will close out whole outfit at \$150 cash.

N. L. HIGBEE, Elsie, Mich.

## Poultry Offers.

FOR SALE.—Fifteen Barred Rock eggs for \$1.00; 100 for \$4.00. MRS. W. L. BENNETT, Rt. 1, Crooksville, O.

FOR SALE.—Choice R. C. Brown Leghorn eggs, 75 cts. per 15. HENRY TIEDEMANN, Hammond, Ind.

FOR SALE.—Twenty White Rock eggs, \$1.00.

F. E. SCHRIVER, Rt. 2, Forest, O.

FOR SALE.—15 White Wyandotte eggs, \$1.00; nice cockerels, \$1.00 each, Duston strain; seed corn. Circular. J. F. MICHAEL, Winchester, Ind.

FOR SALE.—White Wyandotte eggs, \$1.00 per 15; \$2.00 per 45, or \$4.00 per 100.

CHAS. W. BARNES,  
138 N. Pleasant St., Norwalk, Ohio.

FOR SALE.—Eggs from R. C. Buff Orpingtons; best layers; large size. Satisfaction guaranteed.

ANDREW MANZ, Bronson, Iowa.

FOR SALE.—White Plymouth Rock eggs, \$1.50 per 15. Celebrated Fishel strain direct. Satisfaction guaranteed.

LOUISE ARMBRUSTER, Kurtz, Ind.

FOR SALE.—White Wyandotte cockerels, Duston strain, fine birds, at \$2.50 each. Also eggs for setting, at \$1.00 for 15.

C. A. GRAVES, Shelby, O.

FOR SALE.—Eggs to set. Fine Barred Plymouth Rocks 15 for \$2. No better stock raised anywhere. Orders promptly filled.

G. H. CRUZAN, Jacksonville, Ill.

FOR SALE.—Rosecomb Buff Leghorn eggs, \$2.50 for 15, \$10.00 per 100; largest breeder and finest flock in the world; largest and best layers of all Leghorns. Gold Dust (original). F. BOOMHOWER, Gallupville, N. Y.

FOR SALE.—Eggs for hatching from a superior egg-producing strain of S. C. White Leghorns, \$2.00 for 15, \$3.75 for 30, \$10.00 for 100.

J. F. RASCH, Marilla, N. Y.

## Blacks and Hybrids.

Notices in this column are inserted free, and the publishers assume no responsibility for sales made. We believe, however, that every advertiser will do just as he promises.

FOR SALE.—25 black and hybrid queens after May 1, at 25 cts. each; five for a dollar.

J. G. BAUMGAERTNER, New Memphis, Ill.

FOR SALE.—30 blacks and hybrids, last season's queens, for \$8.00 if ordered now; to be delivered May 1. Perfect satisfaction.

J. C. COX, Ft. Deposit, Ala.

FOR SALE.—Hybrid queens. Will have half a dozen or more about May 15th to 20th at 30 cts. each, or \$1.50 for six. All are young queens. My bees are hustlers. See A. B. J. for Sept. 28, 1905.

SIMEON G. KILGORE, Route 1, London, Ohio.

FOR SALE.—Blacks (Italian queens) bred from my best after years of selection from 1500 queens. Mated, 75c; prolific layer, \$1.00; select and tested, for honey, \$2.00.

G. E. MOE, Candelaria, Cuba.

## Regarding Our Advertisers.

The Best Gate Co., Shelbyville, Ind., have a full-page ad't on p. 456. This is a new ad't in GLEANINGS, and we hope that any of our readers who realize the need of a good gate and that such a need exists on their own farm, will write to this company. There is no doubt about the value of the Best gates; just read their ad and see for yourself.

Most people who live in rural districts have not the means of obtaining a good light better than lamps—without paying an exorbitant price. To such we are sure that the "Best" Light Co.'s ad. on page 452 will strongly appeal. Here is an exceedingly good light at a low cost; and not only is the first cost low, but the after expense for operating. We should be glad to have every one of our readers send for literature telling about this wonderful light. Address The Best Light Co., 306 E. 5th St., Canton, O.

The Mugler Engraving Co., of Cleveland, Ohio, have an ad. on page 403. We are very glad to carry this advertisement, as we feel that many of our readers will be pleased to know of a good reliable place where they can have plates for printing made. When we say that the Mugler Co. have made GLEANINGS plates for some time past we are sure that you will not doubt their ability to execute good work. They are prepared to make every thing in their line, from a photograph to an electrotype. You should correspond with them if you are thinking of having illustrations made for your printing matter.

Perhaps some of our readers are expecting to build this spring a house, a barn, some out-buildings. We wish to call the attention of such to the merits of concrete building-blocks. We have used them and shall use them in new buildings now under contemplation. On pages 443 and 449 of this issue you will find the advertisement of the Medina Concrete Co., manufacturers of concrete-block machines, 22 Court St., Medina, Ohio. We are well acquainted with the men who make up this company—have known them for many years. We know that the firm is reliable, and will keep every promise. We have just printed a very attractive booklet for them which contains 20 illustrations of homes built of blocks, blocks and block-building machines, also much valuable information about the ease, cost, etc., of building with blocks. If you ever build you should have a copy of this valuable booklet, and we hope that you will send for one to-day. We can not say too much in favor of concrete block or of the Medina block-machines.

# The Big Two of the Poultry Press

go every week to thousands of exclusive readers who buy liberally in the desire to beautify their Rural Homes.

## The Feather

The most conservative and instructive of all monthly journals devoted exclusively to the advancement of poultry culture in all its branches.

## The American Fancier

The great weekly journal devoted to the interest of the business in all its branches, goes continually on Saturday to those most interested in standard-bred poultry.

THE ADVERTISER looking for profitable returns can not afford to neglect the advantages to be gained from the use of the advertising pages of *These Two Journals*.

## Begin Now, the Harvest is at Hand

For special rates send to publishers of this journal or to the home office of the two publications.

**The Howard Publishing Co.**  
714 12th St. N. W., Washington, D. C.

# Poultry Magazine,



Monthly, 50 to 100 pages, its writers are the most successful Poultymen and women in the United States. It is

**The POULTRY TRIBUNE,** nicely illustrated, brimful each month of information on How to Care for Fowls and Make the Most Money with them. In fact so good you can't afford

to be without it. Price, 50 cents per year. Send at once for free sample and **SPECIAL OFFER TO YOU.**

R. R. FISHER, Pub., Box 85, Freeport, Ill.

## \$1.00 WILL PAY FOR TEN YEARS!

120 copies and no less than 3340 pages (size 8x11 1/4 inches) of valuable poultry, pigeon, and pet-stock reading, costing you thousands of dollars to procure. Also your name and address in the "Poultry-breeders' Directory" for 10 years; revised yearly. Send \$1.00 to-day, and address

**Poultry Item : : Fricks, Pa.**

## DO YOU RAISE CHICKENS?

If so, you will find The Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cts. a year. If you have poultry to sell, The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb.

## You Need It. : : : :

- If you have only a few chickens;
- If you are at all interested in poultry;
- If you are breeding for fancy points;
- If you cater to the market trade;
- If you are in the business on large scale, you need

## Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts. a year, but we offer it **AT HALF PRICE** for a short time to introduce it to readers of Gleanings. Send only 25 cts. and get it a year; or, if you send us \$1 for a year's subscription to Gleanings in Bee Culture, we will send you Ohio Poultry Journal for a year free. Address Ohio Poultry Journal, Dept. 14, Dayton, Ohio.

## Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free. The Southern Fruit Grower, Box 1, Chattanooga, Tenn.



### Greider's Fine Catalog

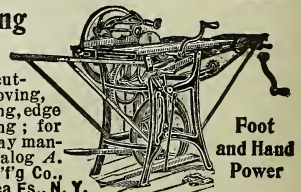
of Prize-Winning Poultry for 1906. This book is printed in several Beautiful Colors and is larger than ever. Contains a Fine Chromo of 11 fowl like fowls. It illustrates and describes 60 varieties of poultry, ducks, geese, pigeons, etc. It shows best equipped poultry yards and houses—how to build houses; cure for diseases; **Best Lice Destroyer** how to make hens lay; poultry supplies and all kinds of information indispensable to poultry-keepers. Prices of eggs and stock within reach of all. Send 10 cents for this noted book.

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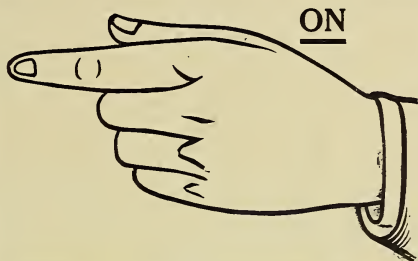


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